32871

THE FUTURE

DEDICATED

To the Memory

of

Florence Alexandra Stewart

A STATION.

All the main offices and thoroughfares will be built like arcades, glass roofed, electrically lit and heated. Moving pavements will enable pedestrians to step straight on to their local trains.

[Iron

THE FUTURE

BY

A. M. LOW

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PREFACE

It is idle to pretend that the future does not interest everyone. Prophecy was probably the first of the sciences. The whole basis of life is hope, and hope is the imaginative philosophy of invention. If History extended for real time, "turtle time," and not the butterfly periods of our lives, progress could be accurately deduced. The smallest shopkeeper depends upon prophets for his profits. He buys at one penny and forecasts a sale at twopence.

It must be realized that progress, if irregular, is constant. If the glamour of time is avoided for the accuracy of relativity, it is obvious that mankind and all things are functions of time and distance. Where is Rome to-day? It lies where all things will be to-morrow.

Everything in this world is a matter of opinion. Facts do not exist. Learned men of medicine once stated boldly that railways were impractical because people could not breathe at sixty miles an hour! Many have died for their conviction that the World was flat.

Every time I look at my nails I am ashamed to realize that I am an animal. I feel keenly the pity and contempt of the man who is to come for the inadequacy of our knowledge to-day. I have this consolation. He will feel his own mental poverty still more. "The Future" is not an idle dream. It is based upon the study of the curve along which relentless civilization is steadily carrying the human race and upon logical scientific conclusions.

Time is all things. I cannot write of time, for all that I have thought in this book is time. The past is dead, the future only remains. All conceptions of life are based upon the comparison of sensation with that of the rate of light. We have chosen that phenomenon because its rate of passage represents our maximum of speed; how then can any incident be not past to us? Already much that I have written has reached our ken from the vast unknown. It may well be that each thought of ours on this planet is travelling to us through infinite space, and if we could but seek it the future would become the past. I ask myself whether I exist, but surely the answer depends on the space or time locality of my life. Already I read of Flexible bodies for motors; of Sailors wearing glasses; overhead Roads; clocks corrected by Radio; aeroplanes directed in fog by Electric induction; Bombs dropped from pilotless aero-

planes by wireless; Telephones which record messages, and Tube stations with underground shops.

The French Minister of War speaks of new Poison gases for a more terrible conflict, and the English papers tell us of whole streets with overhead offices fed with their human load from an Escalator, no further than Havre. These are trifles changed from the future to the past in the space of printing the chapters in this book. If these are points so correctly fixed upon my curve, will not changes more vast apply as my time curve is produced? This is by no means an uncommon method of successful research.

I have written much of women; but I compliment them in my humble belief that the future is in their minds and not their hands. Not, indeed, because I know anything of their ways, but because, like tadpoles, they are worth watching for the changes that may come.

A. M. L.

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CHAPTER I

WONDERS OF THE FUTURE

It is not strange for people to be interested in the future. They have lived the past; the present with its never ending flow of scientific developments is full of interest, but it is the future that excites the imagination of all. What further progress will be made during the lifetime of the present generation? What thrills has life in store?

The question is really what *science* will do for mankind in the future. It is not possible to separate science from life, for it is to technical studies, in however simple a form, that mankind owes its clothing, amusement, rapid communication, and general comfort.

A scientific forecast of the future is by no means founded on "guesswork," any more than an official weather report. A century is a compara-

tively short space of time to the scientific mind, and by sedulously avoiding any undue flight of imagination, it is possible to arrive at eminently reasonable conclusions based upon the progress that has taken place ever since intelligence began.

History is of value, for it enables one to look back and stabilize a point on the curve ; to realize what immense differences there are in the modes of life with the passage of time. It would be ridiculous to even hint that progress will cease *to-day*. The scientist of the future will look back upon the puny efforts of the present generation, as we to-day regard Stephenson's "Rocket." That thought alone should be productive of the humility so necessary for advancement.

All who value their business and their lives must show an intelligent interest in progress. It is important, however, to consider the future from the broadest point of view, for there is no such thing as permanency. That is purely a relative term.

People are apt to regard their solid homes or business houses as permanent : yet the time will come when all the buildings of to-day will be mud and dust.

The world viewed during 1917 might suggest that war was perpetual, yet looked at from the distance of years the world-average of war was but little higher than usual.

What would even the "man of advanced ideas" of 1824 A.D. have thought of anyone who ventured to predict that the people of 1924 would fly in the air, travel under water, send a message round the world in seconds, sit by their fireside and hear the music of a band playing 9,000 miles away, and wipe out a regiment by poison gas in a few moments! What miracles of science can the next centuries hold in store? How will the people of 2024 A.D. and 3024 A.D. live?

The general term "the future" must necessarily be used in the elastic sense for the purpose of "peeping ahead"; for while some developments will mature in ten years, others may take fifty years, a century, or many centuries. History has proved that the world is not standing still. One must not be surprised to realize that the day may come when communication with other planets will be no more remarkable than the present radio telephony would be to the South Sea Islanders.

It must be remembered that the *time factor* settles everything; people themselves are merely functions of time. Even solid iron and water are similar. One certainly takes longer than the other to accustom itself to the form of a containing vessel, but if it were not for the time factor they might be identical. The greatest changes in civilization and invention owe their

inception to an attempt to annihilate distance—it is a question of time and speeding up.

There is no necessity to enlarge upon the part which science plays in the everyday life of mankind. After all, science is merely an effort to explain the facts of the present and the logical probabilities of the future.

There was a time when savages living a hundred miles away from each other were cut off as if they dwelt at opposite poles, and the result was reflected in their daily life of fear and hatred. They spent their time endeavouring to maintain life, and, while to a certain extent that is true of to-day, for all nature is perpetually at warfare, people can at least travel anywhere quickly, and speak practically irrespective of distance. There should be slightly less inclination to fight between nations linked together by efficient communication.

Time will be a far greater factor in the future than at present; now, business men waste half their time in travelling, but they will eventually find seconds of importance. To-day even appointments are made for a definite time when Mr. So-and-So will be able to spare five minutes, whereas a few centuries ago men cheerfully arranged to meet "at the full of the moon."

After time, undoubtedly the great incentive of future progress will be comfort. Modern

people would not long survive under the conditions of five hundred years ago, the average man and woman of to-day enjoy far greater comfort than even the kings of old; as a result of alleged civilization they are petted and pampered in every conceivable way, and this progress will continue.

Certainly the present is only the very beginning of an age of discovery. Every day brings some fresh wonder to birth, for there is no limit to the adventure of men into the terrific realms of science. Pain is being eased, comfort and pleasure increased, and life itself is being lengthened.

The modern brain is relatively but little more advanced than that of an animal, and consequently there is a limit to its capabilities to conceive the miracles of to-morrow. Power from the Sun and Tides, wireless wonders, atomic energy releasing limitless forces for good or evil.

To-day who can even say what light is or where it comes from? Can electricity be really explained? Is there any secrecy or perfection in radio communication? Has the spectrum been fully explored? There is plenty of room for improvement in all branches of research where experimenters are blindly manipulating devices, like children playing with toys.

One point is, of course, of vital importance. Unless the advance of science is closely accom-

panied by an equivalent progress of moral and ethical ideas, scientific discovery may unleash powers that could ultimately destroy civilization.

But the horror of crime and untruth is increasing. The sole object of science is to reveal natural truth ; it has nothing to do with national conquest or commercial exploitation, and whether mankind is happier or not through this progress depends largely upon the educational status of the democratic community.

It is not necessary to enquire whether science is the friend or enemy of man. It showers on him a thousand beneficial gifts, and is his obedient servant. It answers his call and slavishly obeys his will.

The progress of the past is principally of interest as a means of helping people to study the future. The alleged evidence of the extent of the learning of the ancients and their powers is most unreliable, and the few written records that are available are spoiled by ignorance and what might be termed " hopeful translation." We have no record of the ancient masses, only of the few outstanding examples of unusual intelligences. The past does not merit our wonder. The Pyramids, often quoted as a marvellous example of the builders' art, could be reproduced without difficulty. We do not brick up men when their work is done, and commercially it would not pay

to construct a Sphinx. Time is too precious a gift and too stern a master.

It is obvious that the future will see immense changes in the mode of life of the world. The next century will mark a greater advancement of civilization than any in the world's history. A thousand years ago very little happened in a century, but each successive generation has shown greater progress. The last hundred years has seen the greatest advancement in the history of the human race, and it is not easy to conceive what progress will be made in the next and succeeding centuries.

Life in the future will in many ways be a more wonderful, comfortable and pleasant experience than can at present be conceived. But a longing for the "good old times" will certainly exist. It is the penalty of hope eternal!

CHAPTER II

SOUND AND SILENCE

It is not yet generally realized what a great part noise plays in everyday life. There is no doubt, however, that the whole question of sound and silence is becoming of increasing importance, and in the near future due attention will have to be given to it. Another generation will find that most of the roar will have been taken from the street traffic, noise-reducing devices will be in use in every walk of life, and future laws will definitely forbid any serious noises as a matter of course. Then will commence the silent era which already shows signs of approaching.

The first symptoms of the general abolition of sounds and noises are reflected in the order forbidding whistling for taxi-cabs, in the increasing number of streets displaying notices prohibiting organs and street cries, and in the vigorous campaign that has lately been waged against noisy exhausts and loud hooters on motor vehicles. The future will find serious steps taken to prevent

these and other types of noises. Yet the days of a happy coaching trot over the cobbles were not long ago.

It should be explained that there is a great difference between a sound and a noise. Sounds have regular waves, whereas noises are produced by irregular oscillations. It has been proved that discordant noises have a most tiring effect on the human race. Just as the elimination of mechanical friction is necessary for the proper working of machinery, so the avoidance of noise-friction of the human senses is important for the equable functioning of the mind. There are people to whom noises produce oscillation of the middle ear, and as a direct result they suffer sickness. In cases of serious illness when quiet is essential, or, in other words, when the patient is too weak to stand the tiring effect of noise, straw is frequently spread outside the windows to deaden the roar of traffic. It would be too great a strain on a weakened constitution to have to draw on the reserve of energy to resist and counteract the noise.

If this strain of noise has to be eased for invalids, is it not obvious that it could only improve the health of the people in general if the nerve-shattering effects of noise were reduced or eliminated? There are certain noises in the vicinities of factories which are practically con-

tinuous, and people are apt to ignore them or to explain in a vague way that they "get used to them." But all the time these people must be unconsciously drawing upon their store of energy to resist the strain, whether it is noticed or not.

Owing to the general weakening process and deterioration of the senses that has marked the advance of civilization, people are far more sensitive to noises at present than in bygone times, but fortunately nature has deadened the susceptibility of the ear. Many people can detect a movement of a telephone diaphragm of less than a millionth of a millionth of an inch. It is not to be wondered at that the somewhat irresponsible movements of many loud speaker diaphragms are detected and objected to, by those of musical tendency. If minds could be attuned to respond directly to aetheric oscillation, no intermediary receiver would be needed. Broadcasting would thus become replaced by directional wireless to reach a definite locality.

The past few thousand years have found the minds of the human race becoming more sensitive, and it is no exaggeration to state that another two thousand years will find mankind unable to exist amidst noise. The discordant shriek of the modern mechanical horns, or other super-noise of this age, has an effect upon the nerves of the people in the vicinity, as would a blow upon their

physical bodies. Once upon a time, heavy, clumsy coaches rattled and rumbled through the cobble-stoned streets of the towns without disturbing the inhabitants in any way; but now the scheme of laying rubber roads and pavements before the large hotels has been adopted in several instances and is being considered in others in order that guests may rest in peace. Traffic of the future will lose much of its roar and rattle when rubber is used for roads and for all tyres; loads will be scientifically packed between rubber sheets for the same purpose. Not much longer will people allow lorries to dash along the roads, laden with clanking empty milk churns. Unless drastic steps are taken to reduce the volume of air disturbances, people might even be driven underground or compelled to adopt some skull or ear cap as a protection.

It is not generally known that noise has a destructive effect on mechanism, which is almost without recuperative power. Also, that the actual horse power of strident noises can be accurately measured. Noise in a room actually raises the temperature of the air. The evidence of the ears in questions regarding noise is notoriously unreliable, varying according to stomach and other exact conditions in each case. The nature of a noise must be determined before taking steps to prevent it. In order to arrive accurately and

scientifically at such a standard which would provide a common basis in all questions relating to the volume of sound or noise, air wave photographic machines must be employed. These, in one form, are like cameras that photograph the waves of a sound, which, entering a receiver, come into contact with a super-sensitive diaphragm. This has a minute portion of mirror attached, reflecting a tiny beam of light on to a strip of photographic paper. The paper is revolved rapidly on a drum and the vibrating mirror spreads a beam of light over an area varying according to the intensity and subtle inflections of the sound waves. Silence is registered as a straight line.

Such machines have been used during experiments, when a determined effort was made to reduce the noise on the London Underground Railways. In a special experimental train it located the three main sources of noise—wheel and rail shock, motor and gear noises, and general loose rattle. These were eliminated by filling the hollow roof with asbestos, dividing the windows into smaller areas, and fitting hoods over the wheels to *deflect* the noise to above the level of the ventilating windows and out of phase with the direct wave from the wheel and rail.

Before the test there was a deafening rattle on the cars that made conversation practically im-

possible while the train was in motion, but in new rolling-stock embodying the noise-reducing devices, it was found possible to hear a watch tick, if held one foot from the ear. The great interest that was aroused in Europe and America as a result of this test proved that there is already a real desire to take much of the din out of life.

The future will find noise-reducing devices in use on all traffic, while the same process will be carried into the home and every walk of life. Much of the clatter and rattle will be eliminated with beneficial results to all, and without increasing the physical and mental strain of conversation.

The stage of telepathy without lip waggle and lung jerking has yet to come.

Office windows could be provided with sound reflectors, public buildings and dwelling places must be "proofed" to noise as they are for drainage. Concert halls must be rendered suitable to the tones of light and sound irrespective of the number of the audience. The man of the future will not be content to appeal casually to one of his senses at a time. Who knows but that many more direct and indirect approaches to his aesthetic sense may be discovered.

To-day the hum of a mosquito suggests danger, not only in view of its consequences. The note is high; some persons cannot hear it; but it is normal to a dog. Recurrent shock is usually

cumulative. The air is full of sounds that our ears cannot detect, and sights that our eyes cannot see. Their existence is not suspected because an amplifier or a microscope is required. Some effect must be produced; it may be slight, it varies in degree with every person, but in the future we shall resent the existence of any power over whose effect we have as little control as we now hold over the noisy world of this savage generation.

We have much to learn from the noises of this world. The silence of the unknown universe is our lesson. We cannot even show appreciation, and by a combination of unsuspected senses indicate passion or pleasure, without noise and waste. We still curl up our lips like dogs and make noises when we are angry. In the far future, actors, if they exist, will not need to retire to create an impression or to call for more applause. We shall take our pleasures so silently and with such delicacy, that food will acquire value even according to its shape, the music with which it is served, or the temper of the waitress who serves it.

The only silence we know to-day is that of sleep, and this also is disturbed by the mental sounds of our own imagination. We cannot conceive sleep, it is easier to court it by thinking of sleepiness, the nearest approach to silence and to peace that it is within our power to obtain.

CHAPTER III

ARTIFICIAL LIGHT

WHAT has been one of the—probably *the* most—important factors in the development of the human race from the Stone Age to the present day? Artificial light.

What is the crudest process to be found in the every-day lives of the people? Artificial light.

Those two facts reveal a most surprising state of affairs, and should be very humiliating to our boasted "civilization." Artificial light plays a most important part in this life and has undoubtedly contributed to the progress of the ages. It is almost impossible to conceive this world without any form of artificial lighting system, for the temporary dislocation of supply by a strike, or breakdown of a power station, serves to emphasize the vital importance of seeing without the Sun, or reproducing some of the energy given to the Earth by that body.

As light is so vastly important to everyone in every home throughout the world, it is only

natural to expect to find that the science of artificial lighting had been brought to a very high pitch of perfection and efficiency. Quite on the contrary, lighting methods throughout the world to-day are abnormally expensive and inefficient. Very little progress has been made in the past. On the average, our alleged modern lighting systems produce somewhere about one pennyworth of actual light for every shilling expended; the remaining light being mostly dissipated in unwanted heat—for heat is merely an invisible form of light. The paying of lighting bills is amongst the most wasteful and inefficient methods of spending money that can be conceived.

Artificial light is probably one of the most hopeful fields for scientific research at the present day, and as the question is far from being neglected, it is certain that an important scientific discovery of the future will be one of the world's greatest needs: a cheap, healthy and really efficient method of artificial lighting; quite possibly by means of radio oscillation.

The advanced intellects of the future will certainly not allow the matter to remain in its present highly unsatisfactory state, and vast improvements may be expected.

Even at the present day we are far from certain as to the cause of light. It is one of the many

unexplored phenomena. The suggestion has been made, but not proved, that light proceeds not merely from the object but from the eye as well. Another unexplained fact is the glow-worm's method of producing light. It certainly seems that nature has a more efficient plant than even the latest power stations. Both these points will be cleared up by research in the future.

It appears likely, from recent radio research, that the much needed improvement in many directions, and particularly that of lighting, may come as a result of these investigations. Wireless, although it has a different wave-length, possesses many of the characteristics of light; it can be refracted in the same manner, and travels at exactly the same speed. Therefore all the time spent by innumerable workers on wireless research is indirectly leading to a better understanding of the whole question of artificial light, and the near future may bring forth a complete revolution of lighting methods which will be of inestimable value to all.

By the further study of the motion of the electron, means may be discovered whereby the preliminary heating of filaments in our modern gas filled lamps may be totally replaced by a controlled discharge producing oscillation of some impalpable material and giving us the sensation of illumination.

Without artificial light none of our modern buildings would be possible, and as the buildings of the future will rely upon indirect illumination and less upon daylight, improvement is assured. Light is one of the greatest preventatives of crime. Any cinematograph manager knows that. It is recognised now by the medical profession that "light hunger" affects people both bodily and mentally, for baths of artificial sunlight are one of the latest methods of healing, and can bring about a remarkable improvement of health and spirits. Artificial sunlight may in the future become the illuminant in general use, and in that case would be greatly beneficial to the health of coming generations who must spend about one-third of their lives in its rays.

Natural light is a mixture of the seven colours of the rainbow—violet, indigo, blue, green, yellow, orange and red. Science has proved that the healthy stimulating colours are violet, blue, indigo and green, and yet our present lighting systems seldom contain these healing tints. Fogs will also filter these rays from sunshine and thus town-dwellers do not benefit by nature's greatest tonic in an age of the direct use of coal.

Artificial sunlight contains all the colours of natural sunlight and its use in the future will to a great extent relieve the usual winter depression. There are numerous diseases which can be cured

by this means, and if science can turn winter into summer by the broadcasting of heat, light and health, this will not seem strange to the medico-scientist of a thousand years hence.

In the far future there is no doubt that wireless light will be broadcast from several stations, and all buildings will tap it through meters as required; looking still further ahead there is a possibility that advanced science may bottle natural sunlight to its services. Whatever, then, the lighting methods of the future may be, we must soon improve our present inefficient methods, and the problem is so big that it will only be solved as the result of mass thought and scientific co-operation. The æther, which may exist in many forms, and the electron, which may be capable of infinite subdivision, may be comparable. Our knowledge to-day is little more than assumption.

In the world to-day we all talk glibly of light and visibility, of transparent and solid. We use terms that are purely the result of training and relativity. Our fathers said green was green. Some may find it nearly blue. To a man of to-day without a magnifying lens, mites in cheese do not exist. Who shall say that wood is solid when some forms of light will pass through it so comfortably?

It is by accident of birth that in this planet a

particular combination of lights of definite wave-lengths are used by us for seeing. On other planets all may be different. Moth are attracted by other lights than are visible to ourselves. Moth will find their way to each other across miles of city streets. Is it sight, is it sound, is it smell? May not the future give us a method of combining these senses and of detecting them directly or radiographically as we will? Be it remembered that to-day many of our buildings are lit like caverns in the Stone Age. We have yet no proper notation for colour tones, harmonies and beats. Remember again that a few hundred years ago Galileo was given the choice of being burnt or denying that, by means of a very simple telescope, certain heavenly bodies were visible to him.

We have not yet advanced so greatly after all.

CHAPTER IV

PLANET COMMUNICATION

THE all too prevalent idea that this Earth is the only one of interest, is a sign of our very small minds, and there is little doubt that the man of the future will look upon the whole universe as his field for communication and other operations. He will not be content with speaking vaguely about the Man in the Moon or hinting at the existence of beings in Mars. He will want to know *definitely* just what other beings inhabit the universe, so that he may communicate with them, educate himself still further, and take an even more broad-minded view of life.

Of course it may be that the stars will become much more beautiful or much less beautiful when more is known of them in the future. At present it is found that most things become more ugly when approached. From the top of a distant hill a village appears very pretty nestling in the trees, but when one arrives there, it is found that the men beat their wives and half the children have

measles. On the contrary, other planets may prove to be like many previous mysteries—the better when furthest removed from the darkness of ignorance.

Energy may eventually be brought to this Earth from other planets. People are apt to regard the problem of interplanetary communication as fantastic, although there is little to justify that point of view. At present a wireless wave can be sent to any part of the globe in one-twentieth of a second, and having brought the other ends of the Earth within a stone's throw, science will not be content to rest, but will seek fresh fields to conquer. Is it not possible that the fresh field of the future is communication with other planets? Although first attempts may prove abortive, educationally they would be well worth the trouble. Scientific instruments are steadily improving, and at the present time, under favourable telescopic conditions, a spot in Mars must have a diameter of about thirty miles to be seen at all, although a long line only a mile wide could be detected.

Only 35,000,000 miles of space separate Mars from this Earth when it reaches the nearest point. Such a time would naturally be chosen to make a determined attempt in the hope of solving the much discussed problem whether any form of intelligent life exists on that planet. This first

effort might consist of a series of light flashes from the summit of the Jungfrau. A gigantic electro-heliographing apparatus will concentrate the rays from the dazzling snow fields and throw them in a super-searchlight beam millions of miles through space. Ten thousand giant calcium flares, and reflectors more than three miles in diameter formed by the concave slope of snow on a neighbouring mountain, will develop a light of roughly two million billion candle-power. The 35,000,000 miles of actual distance are reduced to 50,000 miles of visual distance by the powerful telescopes which watch for any possible reply to the signals. Regenerative rockets may also be tested in the hope that their bursting flame may be carried to within visual distance from Mars, whose general conditions amply justify the view that life may exist upon that planet.

There are several means of signalling that offer possibilities if experiments are conducted in a determined manner. Directional and carrier-beam wireless is naturally the first method of communication to occur, for this power is in its infancy, and has possibilities so vast as to be difficult to conceive. The most powerful transmitting station is believed to be just capable of reaching the Moon. It is true that Mars is one hundred and fifty times more distant, and wire-

less strength is believed to diminish rapidly in free space, but it is far from fantastic to believe that in our near future, as knowledge of this wonderful force improves, it may be possible to span the distance by sending directional waves, or combinations of waves, of enormous strength.

There is the possibility that the waves might be deflected by other planets; and also that as wireless does not effectually operate on all parts of this Earth, so Mars may be a "flat spot" in the same way, which would render all attempts useless. There is one significant point, however. Thirty years ago, wireless was a question almost of yards, to-day, if the distance between the Earth and the Moon can be bridged, what of to-morrow? Assuming that radio signals are eventually sent to Mars, the success of the experiments depends upon whether there is any code by which intelligent communication can be had with the hypothetical Martians. This does not, however, seem a serious difficulty, because there is little reason to think that life upon Mars calls for a lesser intelligence than upon this Earth, and a very inferior man can detect many forms of signalling. What seems at present almost inseparable in the case of wireless, is that whereas the distance might be accomplished, it must be admitted that signals seem unlikely to leave the vicinity of this planet as far as direction is con-

cerned owing to the reflecting influence of sunlight-affected aether. Nor, of course, can one do otherwise in other forms of signalling than assume the Martian sense of vision to be similar to that of the human race, an hypothesis difficult to support. That vision and life exists may be argued hopefully, but in what form, is a matter of almost pure conjecture.

It seems firmly established that life is no longer confined to the average idea that it is "something which moves." To say "something which *fights*" would be more accurate, for it is known that flowers and forests fight hard, and also that only the limitations of human vision—it may be different in Mars—prevent people from seeing the whole air teeming with life. It is the sense of time which makes stones appear dead. That the lilies of the field toil not, is a happy fallacy.

Again, Mars might be very different from this planet, but it should teach men that to suppose life to be confined to this paltry Earth, out of a system whose extent we cannot grasp, is quite vain.

Another method of signalling that might be employed is by means of smoke screens. These have been brought to a highly scientific stage, a squadron of aeroplanes might form a black smoke line, over the white clouds, a mile wide and, say, fifty or sixty miles long. Assuming that there

are Martians with instruments and eyes equal to our own, this would be visible to them.

As we know that light reaches this Earth from Mars, the method of signalling, either by groups of huge search-lights throwing powerful beams of varying intensity and wave into space, or a series of flashes of great brilliance produced by the latest chemical methods, might eventually be successful. But as during our night the Martian hemisphere is in broad daylight, the light produced would have to be distinguished in some way from sunlight, and the signals used would need to be prolonged so that the right moment could be covered.

If any phenomenon is observed on the surface of Mars that could be interpreted as a reply signal, such as dark patches of trees arranged in any elementary shape such as a circle or triangle, it would go far to prove the existence of life on the planet, and this is the first step.

It has long been debatable whether beings of intelligence do really exist on Mars. If "people" do exist they might be much less intelligent, or, more probably, far more intelligent than ourselves; again, they might exist as "Robots" without a soul, or in the form of thinking machines with no physical characteristics such as are known. They might well *see* by a part of the spectrum which to humans is *heat*, or vice

versa, for there is not the slightest doubt that life exists in forms of which nothing is known. Our senses are all very relative. To an Eskimo, water might have been regarded as a solid, and to a life cell or a thought form in Mars our signals may be unintelligible for many centuries. We, in our little way, do not *know* that the atom is not an inhabited world, but we cannot conceive a method of communicating with its possible inhabitants. It is only to human beings that an apparently tangible body and Earth seem necessary to fix our conception of sentient life. The whole atmosphere and all space is practically living, and all forms of life are relative, therefore it would come as no great surprise to many who have studied the subject if it were proved that beings of intelligence do actually exist on Mars. If their intelligence were vast, would they not have found some means to communicate with ourselves?

Viewing the whole problem fairly, it appears that however poor our attempts may be, there is no reason powerful enough to justify a total neglect of *experiments* on these lines. Knowledge in this little planet may be contemptible, it undoubtedly is, but let us at least *try* to use what brains we have. Our appreciation cannot yet greatly exceed that of a worm taken to a stall at a London Theatre.

Interplanetary communication is thus a very real problem for investigation, and it is a problem that holds out at least one advantage. However bad the first attempts may be, we shall learn, even if it is only about our own signals, and however poor may be the method it might well suggest a better. Centralization and correlation of learning is mankind's duty, just as science exists as an effort to explain some of the phenomena of life. One must not say facts—there may be no such thing as a basic fact!

If generations of the future succeed, as is likely, in establishing actual communication with inhabitants of other worlds it may provide another source of warfare and of learning. Travel undoubtedly cures war. There are many countries to-day with whom we would fight most bitterly, if airways, subways and seaways did not hold out a prospect of intermarriage and of the denationalization of the universe. Which will happen first?—Probably the lure of sex will allow both methods equal progress.

Conceive the meaning of travel; it is only our sensations we can impress. If another continent is our objective, it is to touch and to the indefinitely conveyed senses of hearing, seeing, and smelling, that we appeal for one end; the mental conception. It is not practicable to divide fact from suggestion, and if power can be electrically

conveyed across space, and power is electronic oscillation, what if matter should depend for its conception and character purely upon the transmitted effects to our minds? Shall science not eventually discover how such oscillation may be converted, just as to-day we try to do with radio?

And what therefore is to prevent the transference of the conception of matter and of our mentality from one planet to another? Can the word impossible even be used where time is the all-controlling factor, it only requires a rapidity of thought in excess of the normal speed of the world's control to enable the past and the future to be exchanged. If matter is the result of defined electric vibration, could we not transfer our tables, our chairs, and ourselves in effect, by a knowledge of the forces which produce these oscillations. It would not perhaps surprise a scientist in ten thousand years to watch the transfer of a tin of petrol or of an office desk from one continent to another by a control of the electronic emanation, and we may bitterly regret the lack of a more complicated method, when other planets come to replace mere continents in our business outlook. Power from the atmosphere or from other worlds will be a hopeful source of speculation for the scientist of the future.

The only difference between a miracle and a

"standard affair," is time. It took, what to us was time, to construct this world from the dust of space, but it is none the less wonderful to a being to whom time may have quite a different meaning. Mankind is part of the solar system, the movement of planets must affect him in some small way. It is this atom of truth that enabled the search for the philosopher's stone to be so tenaciously maintained. It is this grain of so-called fact that lends colour to the astrologer, the forerunner of the astronomer, and strangely enough one of the most mathematically established of all sciences. To suppose that the connection between man and the universe is so complete and so simple that it can be understood by our poor brains is a most excellent example of auto-hypnotic conceit. Our voices continue for ever, like the ringing of a bell. Sight, thought and all else is the result of a conversion of electrical energy. Energy cannot be destroyed, and to a man on Mars we would still be on that chair for a few minutes after we actually, *in fact*, as we delight to say, had left it. If therefore we were neither on the earth nor upon Mars for how long would the impression of our pose remain? Perhaps for ever. It is not impossible that scenes as well as sounds should continue for all time.

CHAPTER V

MOTORING

THE motorist of small means to-day enjoys a far higher degree of speed, efficiency, and comfort than did ancient Royalty, who bounced in four or six-horse chariots. The young science of automobilism is, however, very far from perfect, and we have not even reached the car-in-every-home stage of progress. The elementary improvements, evident up-to-date, can only be considered as the advance guards of *real* development, and the natural and logical process of motoring opens a field of development so fruitful that the car owner of the future, will, in his own mind, have even more opportunities for complaint and for old time regret.

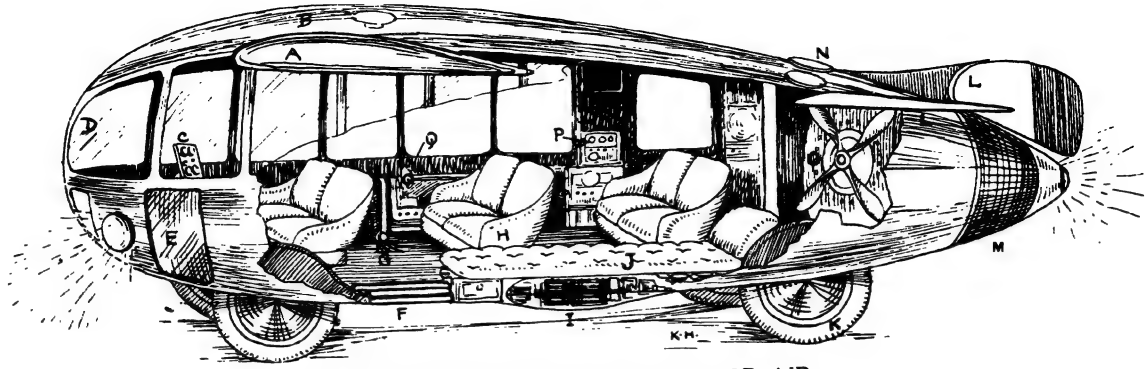
The main factors in all future progress are greater speed and comfort, and these will apply to motoring in all its stages of development, accelerated by hard running, strenuous use, and comprehensive trials. The motorist of the future will not be content with one car, but will be pro-

vided with at least two efficient vehicles; a run-about and a long-distance tourer.

The changes in the bodywork of cars will be great; the prevailing model will be stream-lined, flexible, totally enclosed, with its four or six disc wheels shrouded, and will provide its owner with permanent comfort in every way. The flexible glass of to-morrow will ensure that all passengers are properly covered in on the speediest types, and vision will be kept clear by electrical screen-clearers, by shrouding, or by scientifically directed blasts of air.

The meaning of the word luxury will alter with an increase of speed, with universal garages, and with the all-prevailing feminine influence upon our vehicles. The designer will not only study the comfort of passengers in the car, but will ensure that no acrobatic performance is necessary to enter or leave its luxuriously air-cushioned interior, a point in which some cars to-day lamentably fail.

The engine of the present, with its dirt, noise, smell and constant need of attention, wastes over 80 per cent. of the money expended on it; this state of affairs will not be tolerated by the engineer of the future. The heat now given to jacket and exhaust will certainly not be allowed to go to waste. The engine of the future will most probably be the petrol steam turbine, totally en-



COMFORT IN TRAVEL BY ROAD OR AIR.

(A) Telescopic Wings, room for beds on larger machines.
(B) Concealed Plate Aerial.
(C) Instrument Board with Position Finders, etc.
(D) " Flexible " Glass Windows.
(E) Observation Windows for Air Travel.
(F) Automatic Folding Step.
(G) Folding Writing Table.
(H) Folding Seats.
(I) Multi-cylinder, super-charged and mechanically exhausted, high efficiency engine; or Electromotive Power by Radio-Inductance.
(J) Reclining Couch.
(K) Shrouded Wheels.
(L) Elevators and Rudder.
(M) Regenerator.
(N) Air Intakes. Exhaust through Regenerator to use waste heat.
(O) Air Propeller.
(P) Wireless Loud-speaker and 'Phones.
(Q) Wireless Television and Folding Table with Dictaphones.

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control tower of a neighbouring city. The super-omnibus of the future, running on definite routes, may be entirely controlled in this way. Even to-day the new road has robbed us of much of the relative sensation of speed.

The springing of the future car will be vastly improved. It is a problem that is constantly changing with every variation in weight and speed, and may be solved by some pneumatic device, even if air does not form the sole means of operation. The perfect pneumatic springing system will be arranged to correct for both loading and speed. The unsprung weight of each independently sprung wheel will be low, and comfort will be provided for the chassis which has not the same recuperative powers as the passengers.

Although with improved radio and other methods of communication in use at that age we shall have little need to write a letter, the excellent suspension of the future car will certainly permit such a performance, if required, while travelling a high speed.

The main roads of the future will be absolutely dustless and resilient. There is therefore little likelihood of vast constructional changes in the chassis, with the probable exception of the introduction of new materials of improved flexibility and steel-aluminium compounds of light weight.

The roads of that period may be likened to our proverbial billiard table; they will be lighted by diffused light, in place of the irregular patches of to-day, and efficient head lights will no longer be such a vital need.

The seating accommodation will comprise really comfortable reclining air cushion seats, the interior will be efficiently lighted and warmed, and wireless telephony will keep the passengers in touch with any place during travel, no aerial being necessary.

The apparatus within reach of the future driver will be most comprehensive. The clock will be radio synchronized, the travelling map will be a vast improvement on the present system of trying to read a flapping strip of canvas on a wet windy night, and a wireless telemeter will keep him in touch with all current news.

Other highly efficient apparatus will include milometer, inclinometer, barometer, averometer, speedometer, and thermometers for car air, engine, etc. The radio telephone and loud speaker will stand on a convenient table while the instruments needed for travel by air will be added when the aerocar of the future has materialized.

No force will be required to operate the controls. Steering will be by means of a vertically adjustable wheel comfortably placed near the easy chair and operated by the fingers, the brakes and

gear changes, should they be necessary, will only need a light touch. Power to operate the main controls will probably be supplied by servo-motors, and braking and motive power will be applied to all four or six wheels. Some system of utilizing the energy destroyed by the brakes will probably come into general service.

The motorist of the future will accelerate and decelerate speedily. Variable worms, friction, compressed air or electrical transmission will be things of the past, and gear-changing, as we know it, will give way to automatically variable gears or to engines which can give power over a wide range of speed.

Drivers of the future will in all probability be numbered as well as their cars, for it is not likely that accidents will decrease for some time. Facilities for washing will be on every car, and this will enable passengers to arrive at their destination as fresh as when they started the journey. On arriving at a destination the car will be driven straight on to a moving stairway which will convey it to whatever part of the building is required. The car of the future will certainly not be left in dusty, exposed places or stuffy, draughty sheds.

The engine will be situated below the foot-boards near the back axle, for continual tinkering with spanner and oilcan will be but a nightmare

of the past. The exposed moving part which needs attention will be as rare as a driver with unshaven chin!

The purchaser will probably see and hear his prospective car at Brooklands, while the motor show of the future will be held in the wasted track centre, and there will be a complete absence of unintentional happenings. In a word, we shall have comfort. The use of magnetic route finders and travelling maps will remove the necessity for continually asking one's whereabouts, and the travelling route marker will indicate the place and stopping time. In the far future we may find our way home automatically sent to us by radiograph.

Garages of the future will not be so prolific as to-day, for there will be little need of spasmodic overhauling, but as a great improvement they will be *clean*, and their equipment will include apparatus enabling the moving parts of engines to be examined, either radiographically or by the attachment of some motion observing mechanism.

A better understanding of atomic motion, and of electricity, if the internal combustion engine is still in use, will lead to more convenient means of lighting and ignition.

The future of the motorist is certainly a rosy one. How pleasant to travel quickly, silently, steadily, without fear of breakdown, never to

think of adjusting the belts with which we even now work some lighting sets, nor of oiling inaccessible greasers, and above all to know that neglect is not jeopardizing the safety of the next trip! Future generations will have all the benefit of novelty as well as efficiency, for cars will eventually be equipped with apparatus for travelling by land, water and air, and there will therefore be no lack of routes open to the motorist. Air danger will be reduced by the use of slow semi-Diesel or petrol-steam regenerative engines totally enclosed and employing forced induction in their cycle. Motor-omnibus routes will be considerably reduced, for the increased numbers of private cars will remove their necessity. There will, however, be huge luxurious motor-coaches, travelling by road or water, at high speeds that will bring Paris within a comfortable day's trip from Edinburgh.

It is difficult, of course, to give a clear illustration of the motor-car of the future, but it can be stated that designs must alter along definite lines where to-day's experience indicates the necessity for improvement. Every owner driver is, or certainly should be, an inventor at heart, and *improvement* will always be his main desire. This desire will give us progress in the science of automobilism. To-day over 80 per cent. of our hard bought fuel is wasted. We spend money on

radiators and silencers to help pour that waste away conveniently. Would an engineer-scientist of the future, when fuel and coal is more scarce, be content to let ill alone? Stand by the road-side and smell unburnt fuel. Listen to the noise of exhausts and figure what vast power is going to waste. Look at every radiator, and know that it is costing you as much to maintain as is your car to drive!

Purchase petrol for one day's use at the cost of keeping your home for the whole day, and realize that neither home nor other fuels have reached finality. The alcohol series impregnated with acetylene and flame rate-reducing agents, have yet to take their place in commercial automobilism.

What motorist will be content to wait five minutes behind a horse-drawn van or cheerfully spend two hours in covering sixty miles of the wide, flat, eventless, improved road of the future? We shall be far more likely to recollect that India is one day's journey, and that we can make that journey while in constant touch with home. Old ladies may wake up in Ceylon though their ticket indicated Piccadilly Circus. We may yet complain, as we cross the Indian Ocean on our week-end trip to Malay, that the broadcast music and cloud warnings are hardly up to standard to be expected of the "International-Universal-Motor-Aero-Association."

CHAPTER VI

WIRELESS

To attempt to probe into the future developments of radio research is an effort well calculated to take one's breath away. Wireless has made such phenomenal strides in its infancy, that the future opens up a field of possibilities so vast as to be almost beyond the comprehension of the intellects of the present day. The scientists of the world who are at present playing with this wonderful power would hesitate to predict in any way its ultimate evolution, and a brief survey of the radio wonders which this, or the next generation must expect, is sufficient to prove that we have in wireless a force so mighty that when we really understand and can successfully control it, it will prove a vital factor in the everyday lives of the human race.

Naturally, the most popular aspect of wireless to-day is broadcasting, for how, when the spoken voice has been carried half-way round the globe, and millions are entertained daily by concerts picked up from the æther by inexpensive ap-

paratus, it has become a much appreciated topic of conversation. How, then, may we expect this service to develop?

It is certain that the number of broadcasting stations will increase considerably in the near future, and that the rather restricted programmes of the present will give way to multiple programmes to suit all tastes, sent out simultaneously on varying wave lengths or beams. The broadcatcher of the future will be able to select his favourite programme, and listen-in for twelve hours at a stretch if required. Valves, *if* they exist, will not always require accumulators or batteries to energize them ; sets will be light and portable ; we shall talk to our friends as we walk in the street. The news bulletins and weather reports will be more frequent and comprehensive for all parts of the country, although there is no probability of their superseding the newspapers. Probably the most popular innovation of the future will be the illustration of the news bulletins by radio photographs and moving pictures of current events from all parts of the world.

Another interesting and important development that we must expect in the near future is the radio tape machine, which will record all news received in our absence and will keep us well informed without the necessity of being near the apparatus at fixed times.

A very useful service will be the radio alarm clock. Signals will be sent out at frequent intervals on different wave lengths, say, between 6 a.m. and 10 a.m. every morning; and setting the alarm clock to catch the signal at the desired time will avoid any risk of over-sleeping. House and public clocks and even watches will be synchronized by signals sent several times daily, and we shall then know the right time instead of finding a variation of minutes all over a small city. Seconds will be important to the man of the future. He will no more think of making appointments for the morning any more than we do for the full moon.

All legal and parliamentary business will be broadcast on special wave-lengths, and interested electors will be able to follow debates as they are taking place. The stars of the theatre, opera and concert platform will be heard by millions, as their voices are broadcast, and relayed round the world. The quality of the broadcasting will also greatly improve, and improved transmitting and receiving sets will render serious disturbances and "jamming" things of the past. The loud speakers of the future will attain a higher degree of perfection, and the clumsy aerials of to-day will be quite unnecessary. Apparatus will gradually become more efficient and compact, until the general type of receiving set will be of the

pocket variety, and at a price within the reach of all. We shall be within sight and speech of our homes at any time.

The question of amateur transmission will need very careful consideration to prevent any risk of chaos, but the wireless set of the near future will make nightly chats with friends possible, and foreigners will be called to our firesides by the turning of a lever. The progress of home wireless will continue, and the broadcatchers of the future with cheaper, more efficient sets, better programmes and radio alarm clocks, will receive a splendid service that we to-day can regard with envy.

Having successfully solved the problem of transmitting speech throughout the globe by wireless in a fraction of a second, the next obvious step is to see the people with whom we are talking, and wireless sight or television will solve this problem for us, and prove a most valuable business and educational asset. Television is developing rapidly now, and we do not have to look far ahead to see the day when it will play a big part in our existence. With the apparatus in its present stage we can watch, say, a field three miles away irrespective of any obstacles, and could count the number of cattle in that field, but the sight would not be good enough to reproduce any details. The first steps, however,

have been taken in the right direction, and it is mainly a question of increasing the efficiency of the apparatus.

Many years ago, successful vision was obtained over about nine miles of ordinary telephone wire, and we may very quickly expect better results to be obtained by television. Its possibilities are unlimited. It will certainly do away with a great deal of the present-day need for travel, and is bound to make our business methods more efficient. The busy man who is confined to his bed for reasons of health will find that wireless telephony and television can keep him in active touch with his affairs all the while. The heads of firms will transact important business at a distance without the necessity of fatiguing travel. Colours will probably be obtained by direct radiation, wave interference or the production of light harmonics.

One of the greatest blessings of television will be to bring the most expensive educational facilities within the reach of all, and the creation of a mental aristocracy. Specialists lecturing at one university or school will have a vast audience, for any number of other schools could be linked up by wireless, enabling the pupils to follow the lecture, both by the spoken word and of the reproduction of diagrams upon the wireless controlled blackboard.

A development that will be appreciated in every home will be the broadcasting of events of importance, when, instead of following the crowd to one particular spot, you will sit in a comfortable armchair and watch the Derby, the State opening of Parliament, the Boat Race or Cup Final, at the actual time of its taking place. By relaying television in the same manner as broadcasting, popular events the whole world over will thus be brought within view.

During times of future war "wireless eyes" could be placed everywhere, making the movements of troops and munitions a difficult task; land and sea mines could be watched in this way and exploded when necessary by wireless. The course of radio-controlled aeroplanes, torpedoes, and vehicles would be watched by television, and it will eventually prove one of the most valuable additions to the science of wireless.

Successful elementary experiments in radio-control have been conducted in past years, and even in its present early stage it shows promise of playing a very important part in the future, when it will lighten many of our loads. Even now we can control an aeroplane for a hundred mile flight and bring it back to the aerodrome with a moderate degree of safety, but there is plenty of room for improvement in our methods.

The uses to which wireless control will be put

in the future are many. During peace and war we shall control airships, aeroplanes, torpedoes, tanks, trains; trams and lorries will also be controlled in this manner.

One of its great advantages is that pilotless aeroplanes will be able to rise to the upper air where the wind resistance is considerably less, although lack of air prevents pilots attaining that height now, and will travel with greater loads, at terrific speeds with lighter engines.

In all probability post office mails will be regularly sent by this method, particularly in desert and mountainous regions, where present transport is difficult and slow. During fogs radio-control will prove very useful, compass direction will be given by under-water cables, and we shall have the wireless controlled tape machine fitted to all aerial transport.

A most persistent belief exists that wireless-control is a process of sending power to the controlled object. Quite on the contrary, it is merely sending directions to the power that is already on the spot in order that it may be applied as required.

Wireless-control signals are sent out by a secret combination of several different wave-lengths, very similar in principle to the ordinary letter lock, and unless the exact sending speed of this combination is known there is no possibility

whatever of any rival station obtaining equal control over the object—a very important point in war time. There is a toy method of wireless-control, and model airships can now be bought for the purpose, but this simple method had no scientific value, as any set can obtain equal control over the model. In the earliest experiments the principal difficulty experienced was that a controlled aeroplane being on the move was liable to damage itself. Big strides have, however, been made recently to improve our methods by the use of oscillatory and differential controls.

A radio-controlled torpedo is equipped with an electrically driven gyroscope which will keep the torpedo dead true on any course that is set, and prevents waves or currents affecting it or washing it from the course. This gyroscope accounts for the movements to port and starboard, the depth being varied at present by a type of barometer.

The pilot sends out his signals, full and half-speed, half-helm port and starboard, full-helm port and starboard, and "explode." Each direction sent has a definite key number, "explode" being, say, thirty dots per second with a super-imposed signal of dots at the rate of 100 per second operating diferentially. Should a rival station send superimposed dots at a rate of 101 per second, the differential gear does not respond, but immediately the pilot sends the exact key

signal the torpedo would explode. The signals are received on a valve and, after being amplified, are vibro-relayed to the gyroscope, amplification power being supplied by a dynamo.

Radio control is a most important branch of the science of wireless, and in the future it will relieve lorry drivers on monotonous roads and lighten many weary loads in surprising ways. In the far future we may automatically control all moving things, maybe even a mechanical service man may be developed to work under this agency.

The wireless transmission of photographs is at the present day a fact, for we can send a picture by this means and reproduce it some miles away, certainly as well, if not better, than the cabled photographs that have appeared in the press in recent years. The future, however, will see this science developed to a sufficient stage of efficiency, combined with reduced costs, for it to become a factor in our everyday lives.

It is more than a decade since a partial photograph was transmitted for a distance of four miles, and the methods employed are being constantly improved. There are, in use at present, numerous methods of sending pictures which have attained varying degrees of efficiency, and it will need time and patient experiments to prove which of these is the most economical and efficient for general use.

One system is to use the electrical resistance of a photographic film, which, being effected by light on the negative, passes strong or weak currents to the receiving apparatus and reconstructs the photograph in all its detail at any distance away.

In the future, photographs will be sent to the daily papers from all parts of the world and published quite as quickly as is news at the present time. Another interesting development will be that photographs of current events will illustrate all news items in the broadcast programmes.

The radio transmission of writing will speedily develop from its elementary stage and be put to many uses. It will certainly be yet another aid to the general speeding-up of our business methods, for men of the future will be able to see, speak to, and write to each other by wireless. That is really all the development we need, for there is no necessity to smell or taste each other at a distance. Even in the future there may be some to whom the rapture of a wireless would allay the pangs of being parted.

Survey aeroplanes will have their plans instantly transmitted to earth, a useful asset in wartime, and all types of documents and drawings will be dealt with at a distance. If we wish we shall transmit our signature to a cheque at the bank, while the cashier watches by television.

In September, 1923, much interest was aroused by reports that the repeated failure of French aeroplanes at that time while flying over German territory, might be due to secret rays discovered by the Germans who were known to have been experimenting for some time with directional radio. Many theories were advanced but they were all out of proportion to the state of experiments in wireless power at that time.

For some years scientists have been working along the lines of discovering a force which can be projected through space for destructional or other purposes. The problem is to discover the best means of sending in a form of oscillations through the air, a force which, on coming in contact with certain metals, will generate heat. When this force can be concentrated and made sufficiently powerful, the delicate rigging of an aeroplane could be destroyed.

At present by an expenditure of about three horse power we can inductively destroy a thin iron wire at a distance of a few feet without any connection whatever. In the future when we have ten or twenty thousand horse power at our disposal, we shall be able to send sufficient power along our carrier wave to destroy delicate metal objects at a distance. By momentarily diverting the full horse power of a giant aeroplane's engine, we could destroy the vital parts of another

aeroplane circling within, say, fifty or a hundred yards, and as practically all our air fighting takes place within that radius it should be a most useful weapon in any future war.

The main difficulty encountered in the transmission of wireless power to-day is that we can only receive a minute fraction of the power sent out a short distance away, because it is broadcast in every direction. This will be overcome in the future when wireless is directional, by using induced current of high frequency to break down the resistance of the air gap, or, more probably, by the use of some kind of projected light or vortex wave as a carrier. Short wave, low power directional wireless is bound to come, and of a type giving true selection.

A curious impression exists that the use of wireless power as a destructive agent entails "waves of heat" through the air. This, of course, is quite erroneous, for it would be almost impossible to generate enough heat to send any distance, as it would rapidly be absorbed. The problem is to transfer energy as electrical oscillation which would generate heat when it actually strikes the metal, and, with a view to solving the problem, experiments are now being conducted.

In its earlier stage of usefulness radio power will be locally distributed from cables under the principal roads, and vehicles using the roads will

pick up the power through their meter as required. In the far future power will be broadcast from several huge stations, and all machinery will be driven from this source. Factories will be built in country places where convenient, instead of being crowded together in industrial areas, and will pick up their radio power from the air. This will be a great benefit to the workers' health.

Hovering aeroplanes will be assisted to remain stationary by wireless power, and as a destructive agent for future warfare this will prove useful.

Apart from tapping our power from the aether, the transmission of radio light will provide our future illumination. At present, we can place a number of bulbs on a table without any connection, and light them by an expenditure of about two horse power and keep them burning brightly for any length of time, the delay in lighting or extinguishing them being less than one quarter of a second.

As the field of radio research is gradually explored all method of police investigation will be revolutionized, and the criminals of the future will find it increasingly difficult to escape detection. The description of a "wanted" man, together with his photograph, will be flashed to every part of the country and abroad in a second. Detectives and fire patrols will be

equipped with portable apparatus to enable them to keep in closer touch with headquarters.

By attaching wireless microphones and television machines in the known resorts of criminals, the authorities will literally keep their eyes on any suspected characters. This would be most useful in stamping out blackmail, for the very wall could be provided with ears and eyes, and the apparatus, needing no connection with the watching detective, would be inconspicuously fixed. Finger prints will also be transmitted by wireless and prove a speedy means of identification.

The wireless wonders of the present day are certainly insignificant in view of the vast developments of the near future in all branches of this science.

Constant broadcasting means that the whole atmosphere in which we live is full of wireless waves of radio activity, and the question arises, what effect has this upon the health of the people? There must be some effect, curative or otherwise, for everything in this life affects us for better or worse, to however infinitesimal a degree, and only time can prove the definite nature of the effect.

In the future, part of the treatment for every ailment will be oscillatory curative treatment taken at home. In past years we have successfully

reared many things, from cabbages to babies, by electricity. Just as ordinary electrical treatment to-day brings health to our muscles, so the continual, more delicate oscillation of broadcasting must effect the delicate organs of the mind, and may in time improve the health of the nation. Protection from broadcast waves may be a serious requirement of the community in time to come.

Schoolchildren of the future will be subjected to a gentle wireless curative treatment during their growing years, helping to build up a healthy nation, and possibly avoiding the need for sterilization of the unfit. Wireless may teach us how to stimulate the memory and how to locate the hidden workings of the mind.

There are many radio surprises in store for us, for wireless waves recognise few barriers. The study of electrical oscillations will teach us to take all the best from life and may tell us something of the very origin of humanity itself.

Wonderful to our hopeless intelligence perhaps, but what would a savage have thought of the wireless telephone?

CHAPTER VII

SCIENCE

PRACTICALLY every day the proverbial man-in-the-street reads of some new discovery made by science, which, like a tireless giant is ever working while mere mortals are laughing, drinking and sleeping. It is indisputable that during the past fifty years more scientific discoveries have been made and applied than in the whole previous history of the world. Yet all these wonderful discoveries put together are but a drop in the ocean compared with the amazing and varied advances of all branches of science that the future *must* see. All sciences are closely interconnected, and one cannot be studied without knowledge of the others.

It is true, there has been development in wireless, and all means of locomotion, but mankind has yet comparatively little knowledge of matters that count. Food is expensive, telephones work badly, while slums, influenza, and foot-and-mouth disease are far too prominent in everyday life.

Mankind thus still labours under many of its old difficulties; but intellectual capacity is increasing, and our mental outlook is growing broader. The idea that scientific progress will cease for any period of time, is absurd. It is making, and will continue to make, faster progress than ever; advancement will steadily increase with every decade. Science has no finality, and the future will see a flow of improvements so vast as to almost beggar comprehension.

Science may place at the disposal of future men forces so great that an entire army or city could be annihilated in a second, and it is little exaggeration to state that if the gifts of science were grossly misused man might entirely disappear from the world.

That there is no fear of such an interesting eventuality is clear to everyone, but there are those whose belief is so strong that they threaten their acquaintances with torture as a means of persuasion. Science is but the teaching of nature, an effort to explain a few of the facts of life, the word of heaven. Science influences men for good, if we could but gain sufficient depth of vision.

The tendency of mankind is towards good. Man is less brutal individually than is nature in the mass. The lowest crowd in the world will hiss the villain of a play, and loudly applaud the

curly locks of the hero as he rescues his wife and children. Mankind is becoming more sympathetic, and the death-rate decreases. Let that suffice.

At some future time man will undoubtedly be able to release and control atomic energy, and there are other forces pent up in the æther that may be utilized. It is believed that a mere cubic inch of æther contains sufficient energy to send the largest liner several times round the world, but the problem is how to tap this storehouse of nature. A solution can only be achieved by the mass effect of thought—the concentration of many brains on the subject for a long time.

The study of the atom will undoubtedly lead to a greater knowledge of life in general. The molecule is merely an arrangement of atoms, and it is this arrangement of molecules which appears to settle whether a body is a solid, a liquid, or a gas. At present man has no exact knowledge of the atom and its structure. It is known that within a single atom there are minute particles travelling at a speed of several hundred thousand miles a second, and there are billions of such atoms on even a pin's head. When a means is found to stop this disturbance and to capture their energy, mankind will have at its disposal a colossal force for its ultimate benefit.

It is pathetically easy to discuss the glories of

atomic energy. Men were willing to be burnt at the stake to show their belief in the flatness of the earth, and to-day they believe that they have solved the construction of the atom.

Who knows whether our brains have enough depth to conceive such knowledge? The atom may be another world such as ours, quite as large or quite as small; it is all purely relative. Our own world may be nothing but the half finished experiment of a clever scientist. Not even a biblical God would regard mankind to-day as more than half finished. Science has not yet explained the meaning of time, and it is time that decides everything. Life is only a function of time.

What is a liquid? Is it not something that conforms to the shape of a containing vessel? But in *how long?* Thick oil, water, gas, sealing wax, and even lead will eventually fill a vessel and flow into it if *given time*. How much time is all we have to know, and we are prejudiced by the fact that all human thought is based upon standards of a short life time.

To humanity eighty years is a long time—it is a life time. It might be a passing moment if we knew. What is a miracle? Something which happens at a speed different from our preconceived ideas. Could anything be more wonderful than the birth of a child? No two children are the

same, yet the stamp of generations is upon them. The same process in one day would be a miracle to men, but to people whose idea of time is that of a tortoise, it would be as uninteresting as the opening of Parliament.

The hair on our bodies, our teeth, our toe nails, all show how far we have travelled to-day. Every object we see in our daily life is understood by us dimly or not at all. We do not know all about the clothes we wear; we cannot make a telephone work naturally; we waste coal in fog, and in all too many ways we live in the Stone Age. We shall be laughed at in a few centuries, and possibly most of all for our methods of obtaining energy. It is so easy to speak of atomic energy and the danger of its release, but if to release this so-called energy requires an equal or greater amount of power, we have only made a negative statement. True, if the Atlantic Ocean were balanced upon the dome of St. Paul's, the power available might send many Americans round the world, but a trifle of energy is required to raise the ocean first. We can make diamonds, but it is far cheaper to dig in the earth.

There are other sources of energy that the future may see tapped. The time may come when the strong winds that sweep over the land will be trapped and their energy stored. To-day we cannot even use electrical storage efficiently

and conveniently. The mighty power of the tides which is now continually wasted would provide four million horse power for Britain alone. There is also power in the sun that may eventually be controlled; and energy gathered, stored and transmitted to the necessary regions of the earth like water to a barren land.

Free power is popularily supposed to be the solution of world happiness, but, like the infinite, free power or free happiness is difficult to find. If a man were left on a desert island with everything he wanted and nothing he did not want, one day he would see a bird fly over the island and would immediately think, "Birds—there must be other islands! Are the others better than mine?" He would immediately be unhappy.

Power means work. A country with coal under the gardens of stolen land is rich and successful, but the air might be just as important in the future. Some are of the opinion that the supply of coal may be exhausted in a century at the present rate of consumption, which is 90% inefficient and wasteful. Then other sources of power will have to be tapped—wind or tides—or power may have to be carried from neighbouring countries, and eventually radio power will be broadcast from stations for the benefit of all who are privileged to use it.

If all matter is the same, and form depends

upon time and atomic arrangement, is it impossible that materials as well as energy should be transferred through space by oscillation and reconversion?

At present power cannot be successfully obtained from the atmosphere, but the wireless transmission of power is in an elementary laboratory stage. Mankind may eventually attain atomic power, but as the price may be the tax of their existence it is difficult to realize that power can be developed from the force which lies within its own infinite creation.

The general electrification of railways will come when it is known how to prevent the present wastage by the study of high frequency transmission, natural electricity and energy.

For the human race, power over those forces not understood means happiness, but at present little is understood of the oscillations of the entire spectrum, far less of life and planetary interference.

Close attention is being paid to the cold lights of certain creatures, in which it is believed that less than ten per cent. of the energy is wasted, and the success of this research will mean effective scientific lighting in the future.

Agricultural industries will certainly be speeded up and entirely revolutionized by science in the future. Food plants will un-

doubtedly grow night and day and yield two full harvests in the year. Already corn has been scientifically cultivated to a height of over sixteen feet, and new varieties of cereals will be grown to order. Recent experiments of dosing cotton, corn and rice with chloride of sodium and other chemicals has resulted in an increased yield of from thirty to fifty per cent. Scientific feeding will avoid such wastage as is now suffered by human beings.

So little is known of existence, that the Earth might be but a bacteriological cultivation. It might belong to a creature so large that the inhabitants upon it appear as fleas do to mankind. This might have given the idea to the many prophets who speak of sudden destruction of the Earth ; they evidently believe that its owner may take a brush coated with disinfectant and wipe out humanity.

There will be improvements in the art of surgery in the future, for the general weakening of the human race due to the progress of civilization will necessitate much grafting of various bodily parts. Very soon pictures will be taken in natural colours without the use of any tri-colour screen, and the stereoscopic and speaking principles will be adopted for films.

Women, owing to their accelerated development, will compete on equal terms with men in

all branches of scientific research, resulting in faster progressive developments for health, comfort and speed of thought and life. Many of the new discoveries of the future will doubtless be entirely due to the sex at present referred to as "fair"—a term they will scorn in days of real equality.

The amazing radio developments of the future, which are bound to lead to increased knowledge of vibration and of life itself, are not easily visualized by a community who until recent years believed implicitly in witchcraft.

To attempt to deal at all fully even with the obvious scientific developments of the future is the task of a life-time, for any day may bring forth some fresh discovery or conquest of unknown forces which abound in the universe awaiting human intelligence for their appreciation. New waves of air and æther are being discovered and put to good use by research workers.

Science is a puny effort to explain facts now existing and the probabilities of the future. Criminals one day will be keen scientific students to prevent detection and capture by the advanced police methods of that period. The cracksman will probably locate hidden valuables by portable radio surveying instruments and other electrical methods.

Innumerable laboratories in every country are

wrestling with nature's secrets. Our conception of life is mere imagery. Yet the past fifty years have taught us that we can draw no dividing line between the quick and the dead. Stones, metals, crystals, cabbages, worms and monkeys—all are living and doubtless all have an equal hope of Heaven. They differ, it is true, in their rate of life, but as to their common origin, the internal driving force, their ultimate scheme of destruction, we can say that "we must have notice of that question." Briefly, we do not know anything about it, and if we are honest our remarks must be prefixed very liberally by the words "in our opinion."

We are far too liable to be browbeaten by prejudice and custom. To-day some success has been attained in the prolongation of life, yet it would have been a risky matter to mention such a subject two centuries ago. The philosopher's stone became a jest, yet even now we know of the common origin of substance, and we speak with hope of the conversion of the baser metals to our uses. All this in a very few years.

The beneficial powers of science should in future lighten many of mankind's burdens, solve all problems of monetary supply and distribution, and make this world a far healthier, happier and abundant place than those living in its present troubled times can easily conceive. There is no

limit to discovery. The human mind is only bounded by its own stage of development. Our knowledge will be but little to the more intelligent of our great grandchildren. Constant reference to "civilized humanity" is a compliment to the advanced mammal of to-day. There will come a time when the petty mind of modern genius will be utterly dwarfed by a being whose interest in other senses, other worlds and in the universe unseen, transcends our imagination and leaves us to rot with our wireless toys and our abysmal ignorance.

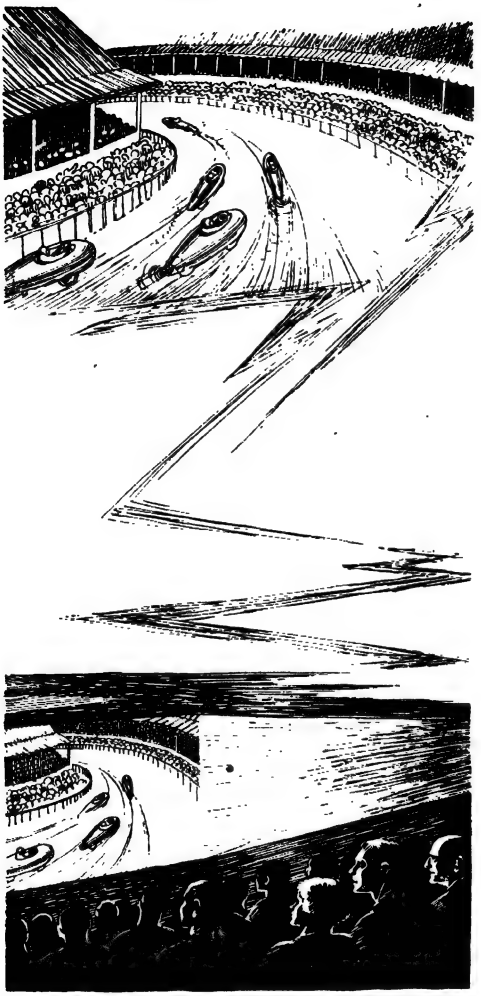
CHAPTER VIII

AMUSEMENT AND SPORT

In the future, amusements will be intelligent and educational, games of brute strength will die out and there will be new games of mental skill. Boxers, footballers, and others who rely mainly upon their strength for a living will be regarded as "throw outs" of low mental capacity. These changes must take place to keep pace with the improved intellects, and they will come just as surely as the day will dawn when no longer certain people are called "my lord" just because their forefathers were wicked or wealthy—or both.

Amusement is necessary, and is an excellent means of varying the strain upon the human mind, but if it is to require physical doping by drink to avoid exhaustion it will be regarded as sheer waste by the men of the future who will be able to truthfully say that they can get the same results more easily by chemical process.

It is easy to see what direction the natural



TELEVISION.—RACES IN AUSTRALIA SEEN FROM LONDON.

[face p. 66]

trend of sport and amusement is taking, by comparing the strenuous village games of olden times with the popular billiards and golf of the present. The latter at least requires some mental skill and scientifically constructed instruments.

A game of chance is not really advantageous. Billiards, a game of increasing accuracy, is dependent almost entirely upon skill. Golf, another ball game, relies too much upon the adventitious effects of the wind, worm castings and grass, to be accounted much more than a gamble. That this is becoming realized is very evident when the mechanical improvement in clubs is noted.

Sports in most cases are mere remnants of barbarity, and only those depending to a great extent upon speed and mental effort can possibly last in the future. The expression of speed is a controlling force in our lives as functions of time, and the desire to move ever faster is the whole basis of civilization.

Money can to-day be guaranteed for a concourse of athletes but not for the maintenance of a hospital.

The future man will view our present boxing much as we regard the brutal prize-fights of old. All sport is based to a large extent upon the primitive desire to kill, and those who chase a solitary frightened stag for miles and finally cut its throat, can only be unfavourably compared

with the bull-fighters of Spain who at least endure personal risk to a high degree.

The outcry against such degraded sports as pigeon shooting and coursing goes to prove that in the future these pursuits will be left to half-witted people who find some such debased excitement necessary to assist their scattered functions of thought or sex.

There are many people at the present time who only go in for alleged "sport" because they are ashamed not to do so, and because it may be a help in their business. The future will alter this.

Imagine a really *intelligent*, thoughtful man—and future education will make men thoughtful—kicking a ball about in a field for a living!

At present one of the most popular alleged amusements is dancing. When considering this it can only be agreed that it is fortunate that the planet to which people are confined by ignorance does not contain any beings of high mentality. Imagine a really intelligent person—one who had solved the electrical problems of life, who really understood planetary movement and the actual appearance of babies into the world—suddenly entering a hot, smelly room where a nigger band shrieked and groaned the latest jazz tunes to a crowd of dancers of all ages, and in all stages of intoxication, the soulless gaiety perhaps being

enhanced by paper carnival hats! They would be regarded as interesting specimens, like performing mice, and efforts would be made to explain the phenomena. Hysteria—result of peculiar breeding—local anæsthesia—very sad!

Human life appears to depend to a large extent upon some superimposed rhythm. People are like leaves agitated by the breeze; when the wind stops the leaf falls into rest but does not appear to alter. The heart, lungs, eyes, and feeding intervals, are all periodic happenings or modulations of some functions of time. As soon as the normal phase is altered by disease, people become abnormal, and dancing with its strong appeal to rhythm seems to have many effects on those who surrender themselves to it. There is nothing unusual in dancing leading to religious or prophetic fervour, as in the case of the Dervishes, and it is often used for the purpose of stimulating the animal passions at small cost.

Dancing cannot be classed indiscriminately as good or bad; this depends upon its purpose. It produces a very definite effect like dope, drink, fear, or exhaustion, and can therefore be a great relief. It will shortly become far more specialized; this will eventually involve the obsolescence of its present form of mere rhythmic motion to music; and it may be that the dance of the future will be used for actual mental intercourse or stimu-

lative. The café of the future will receive the world's music and atmosphere by radio. There is no reason, as the human mind becomes finer, why sound alone should appeal to the sense of rhythm. Why not dance to light oscillations? And would not scent and touch be of help, too? Some dances in, say, a sea breeze, would be absurd. It is therefore obvious that certain light tone pictures and certain smells might assist the mental effect of dancing in the future. To a certain extent they do already. Some dances in the afternoon are like stale cigars in the morning, and people will not long be content to merely wobble the body like savages.

The early dances are absurd to the present generation because they do not control people who surrender to their anæsthesia. Dances can be relied upon to stir up the emotions, as exemplified by the licentious orgies of barbaric courts and the war dances of savage tribes.

Salome hypnotized by her dancing, but she used more than mere music, she added dim lights incense and veils. Dancing is not confined to the feet by other than national prejudice; some countries prefer the use of other less accessible parts of the anatomy. It has not yet occurred to those who indulge in this pastime that the mind, being the object of all effect, may be stimulated by rhythm whose period is more comparable with

the time factor of the next life than with the very ephemeral existence we know.

People now lose interest in an obvious dance, so masked dances are popular; the fact being that as the human understanding grows, we must utilize more indefinite senses and employ more subtlety.

Much of the surrender to the charm of dance is of stomachic origin. Clothes and sex are also very important; hence the dance of alternate clutchings and releasings so popular some time ago. The ballroom of the future with a number of persons oscillating gently from side to side under the silent influence of music, light and scent, communicated direct to the brain, would appear to us almost as strange as would a jazz band of to-day to an intelligent being.

An analysis of actual thoughts of dancers would be most interesting. Alcohol is a valuable aid to dancing, and so might be some oscillatory electrical treatment which would prevent consecutive thought on normal topics.

The spread of communal life and thought in the near future will lead to more dancing, but not by music alone; other stimulants will be needed such as light, special food and drink, vibrating floors, and carefully chosen dress. Naked people often have an irresistible desire to dance and this is not only due to cold!

One of the amusements of the future will be an intelligent interest in one's own work and also the work of others. Health will be a servant and not a master of the mind.

Audiences at theatres will expect to see intellectually interesting plays, for intelligence will have advanced beyond the stage of reviewing a bevy of prancing females through opera-glasses, and scientific lighting and atmospheric effects will be essential to give an air of reality. There will be no waiting outside, nor applause inside a theatre.

Films will be of the talking variety, and will attain a very high standard of technique. Childish minds are appeased by crude amusements, but people of the future will want more. The study of light and radio oscillations will eventually lead to the conversion of light into sound, and vice versa, enabling many wonderful effects to be obtained in providing atmosphere. Many existing sound-colour schemes may become undesirable.

There will be many new games of skill to meet the needs of higher intellects of the future, and more serious attention will be paid to the providing of amusement and eating places. Lunch actually does a man more good if served by an attractive person.

Most sports and amusements are excuses for drinking in older men. Drink is sometimes

considered an amusement. Actually, it is serious, but may be classified as a sport in this country. Less than two hundred years ago signs were exhibited outside drinking taverns stating: "DRUNK FOR 1d"—"DEAD DRUNK FOR 2d"—"FREE STRAW." To-day we have progressed a little beyond this stage.

It is only the extraordinary attitude of the public that makes it even permissible to class drunkenness and drink together. From the statements, not to be dignified by the name of arguments, used by extremists, one forms the opinion that alcohol is the only topic worthy of discussion, and that half the people drop dead at the sight of beer whilst the other half drop dead from the want of it. The disgusting sights witnessed in the streets at "closing time" lead people either to conclude that it is best to drink at home like the rich, or to make the absurd statement that the drink traffic must cease. The drink *evil* must cease certainly, but that is not drink it is *too much* drink.

Everyone knows that dope takes hold and slowly makes one sodden and ill. So does *too much* drink act like diluted dope. Dope ruins the coming generation. So does excessive drink.

The trouble is that drunkenness is treated as a splendid joke. On the music halls, in the most

distinguished humorous journals the man or woman, temporarily half-witted and of lower intellect than an animal, is an object of riotous mirth! If he were held up to justifiable scorn, the young would-be man of the world would realize that drink is only good in moderation. Is it really funny to see men and women who, in possession of their senses, would never forget their pride and their sex, bereft by drink of their faculties and laying up trouble for themselves? Can any home be happy when it contains someone so stupid and debased that he must deliberately lose his senses in order to be happy. Happy indeed! What happiness when he cannot even remember why he was happy.

If a man lost his work, his wife, and his children's health by eating until he suffered from apoplexy and was sick on the pavement, what is the verdict? "Dirty, selfish, foolish beast." But if he takes the food in liquid form with slightly different symptoms and the same result—Roars of laughter! Why laugh at it? Surely the joke is stale.

It is only the poorest of business and recreation that requires a state of semi-coma for success. It is to be hoped that the intellectual capacity of future men and women will sufficiently improve to avoid the necessity of their seeking alcoholic

or other stimulants in excess in order to find happiness.

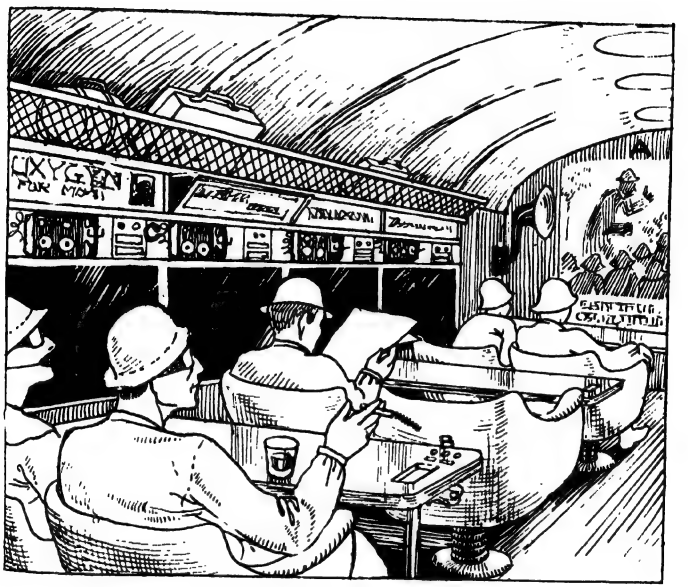
Anything out of the ordinary is alarming, it is sport, it is relaxation. It is for the man of the future to see that his changes are in directions which, once maintained, can increase his capacity of appreciation. That is the only definition of amusement.

CHAPTER IX

CITIES AND TRAFFIC

THE future of cities is interesting, it is mud, dust and continual expansion. Even now a few minutes journey brings a traveller from any city to open country. Science helps growth without disease. London and other big cities will continue to increase considerably, but the general style of architecture will not alter greatly in the future. There will be more large stores where every commodity will be obtained under one roof, and hotel dwellers will be able to do all their shopping without leaving the premises.

The more important buildings will have flat roofs for aeroplanes and airships to land their passengers and goods, and all parts of cities will be linked up effectively by overhead and underground, comfortable railways operated electrically. The main streets will probably be totally enclosed in the style of arcades, glass-roofed, and thor-



UNDERGROUND TRAVEL.

(A) Television or Cinema.
(B) Connection with Typing Dept. or Restaurant.
(C) Telephones to all parts of the world.

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oughly heated and lit by electricity. It would not be an expensive matter to-day to cover in Piccadilly or any other main shopping thoroughfare, and it would prevent foggy weather being practically a dead loss to shopkeepers and disagreeable to pedestrians. There will be no postmen in the streets, all communications being delivered by tubes to each house.

As the human race becomes physically weaker, these arcades will be essential as a protection against excessive wind, rain and sun, and for the same reason *all* buildings will be centrally heated by electrical means. Electric lighting will be far more efficient and economical probably by a more healthy form of artificial sunlight, and consequently buildings will be designed for convenience without depending upon the sun.

Garages or parking places will be located underground in various parts of the cities, which will not be such unpleasant crowded places as at present, when improved telephony and other means of communication prevent the necessity for a man to cart his physical body about merely to leave a message in another part of the town.

The ever-growing number of vehicles on the streets of large towns, and consequent alarming increase in the number of accidents of recent times keeps the traffic problem in prominent

view of the public. The London County Council Ambulances receive a much greater number of calls every year, and the number of fatalities is increasing.

As the number of mechanically driven vehicles in Britain has risen from 26,000 to a million in ten years, and is still growing, the problem is becoming greater every day and must be tackled seriously. Vehicles must not be kept off the road, but workers should be encouraged to use the roads as it improves the health and contentment of the people.

There is little hope of an immediate cure for congestion of the streets in London and other cities, for the question is too big, and what has to be tackled is not the solving of to-day's problem so much as introducing measures to deal with the enormous increase of future traffic when every home will possess a motor-car.

It is not only the automobile which will increase in comfort, it is trains, omnibuses and all other means of transport that will become ideal in their comfort to our minds to-day. To-day a station is a dirty, draughty place covered with notices prohibiting expectoration. We get out when we recognise the advertisement upon the wall, and we throw tickets into dirt-collecting corners, or wait like sheep to hand them to men who are apparently playing at trains.

One of the most important developments of the near future will be an improved system of road-making. Better sprung roads will recover quicker from traffic shocks, and road-repairing will be on a block system, which will allow a complete block of the road to be taken up and relaid in a single night. Cables will rest in proper ducts.

In particularly congested areas the solution is a switchway or viaduct, which takes one way of the traffic up over the roads; vehicles using these switchways would drop passengers at the first floor of shops and offices.

The four-wheeled braking system, now being fitted on many cars, will be a necessity of the future. Pavements will be wider to prevent accidents, luminous kerbstones will assist night-pedestrians, and six-wheeled vehicles will prevent, to a great extent, the formation of regular waves in the roads, besides allowing them to carry greater loads.

There will be little walking in cities in the future, for all streets and shops will have moving sidewalks and stairs. The principal thoroughfares will have progressive sidewalks and illuminated kerbs, that is to say, pedestrians will step on to one travelling at three miles an hour, then on to one travelling at six, and so on, until a speed of about twenty miles an hour is attained;

when nearing their destination they step from one path to another, gradually reducing speed without any noticeable difference. Un-roofed and un-inhabited parts of the country will be as rare as oases in a desert.

Until the advent of wireless power all towns will be run by direct electricity. Cities will be vast buildings; we will not make our roads so that they cannot be dug up for investigation; we will not meet boys walking along with bread rubbing their backs, or see meat exposed to dirt. The very idea would disgust us just as noise will kill, in the future, by accumulation of synthetic worry.

The insanitary horse will have entirely disappeared from the streets, cars will be so cheap as to be within the reach of all, and it will be far more pleasant to ride in the broad, straight, one-way streets than in these days of suffocation by half-used fuel.

Restaurants will be clean buildings without corners of decorations to contain the dirt; and food, when not automatically served, will be served by men whose clothes are constructed to show the dirt and not to conceal it.

The overhead and long-distance underground railways will have stations in many of the principal buildings, and carriages will be luxurious compared with present-day travel.

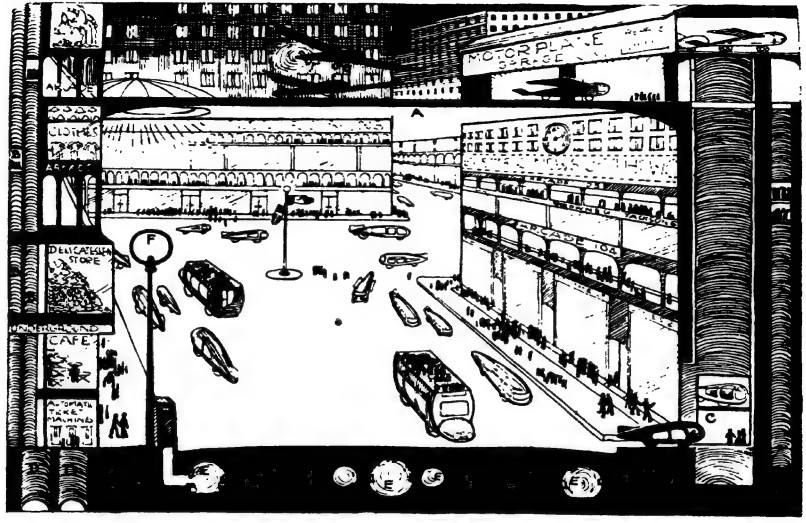
The seating in underground trains will be in the form of comfortable easy chairs, books will be within reach, and waiters will serve light refreshments while the latest news and pictures received from all parts of the world by wireless is flashed on to a screen, and a musical programme by radio is in progress. Is not travel becoming comfortable, cheap and swift? Are people quite content to wait for trains in the cold?

By this means workers will be carried swiftly and silently to their destination, where, instead of wasting time while a sleepy official scrutinizes "all tickets, please," they will step on to a moving platform which takes them to the waiting lift. The present ticket system will be dead, and all will have a form of pass allowing them to use the railways. The air in the carriages will certainly be perpetually cleaned and purified by means of suction fans. Spitting will offend all classes in the future; notices bearing thereon will not be tolerated in an era of week-ends, restaurants, and communal life.

Long-distance railways will probably undergo extensive electrification, and capacity electrical storage will reach a position where motor-cars in towns can make use of electricity direct. Living and shopping centres will spring up in the underground world of travel. In the future, cars will

probably pick up wireless power from cables under the main roads, and, eventually, power will be broadcast from huge national stations and tapped through a meter as required.

The natural greatly increased interest in aviation will result in safety in flying. The slow speed oil engine may help in this direction, if the petrol steam turbine has not come to stay, but when electrical power reaches the aeroplane stage, it will be a great asset and there will certainly be a guarantee of real security and easy landing. Aeroplanes, to-day, depend upon the engines for safety. They use a dangerous fuel, they cannot stop at any point, they cannot slow down their motors beyond a certain rate. All this will be changed. Landings will be possible in restricted areas, and before much time has passed an aeroplane which is not automatically stable will be regarded as the two-wheeler of the air. Pilots of short-distance passenger machines will be reduced to the level of public vehicle drivers. Flying in fogs will not be dangerous owing to efficient radio direction control, and all postal services and regular transport routes will be conducted by wireless controlled aeroplanes. Steamships will be of the hydroplane type, skimming over the water instead of ploughing through it, while the establishment of mid-atlantic aeroplane stations cannot be long delayed.



A STREET IN THE SUBURBS.

Moving Pavements. Illuminated Curbs. Efficient Glow-Lighting.

(A) Roof Landing for Motor Planes.
(B) Public Lifts.
(C) Motor-plane Lifts to Roof Landing.
(D) Passenger Tubes.
(E) Tubes for Cables of Inductance Transmission of Power, also to contain Drains, Water Mains, etc.
(F) Inductor for Power Transmission by Electricity.

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The present day bus will give place in the future to all-metal aerial vehicles capable of carrying large numbers of passengers by road, water and air, and these will bring all parts of the country within "a half-day cheap return" trip. Aeroplanes will land on London buildings or parks; time will be too precious to waste. These "flying-road-boats" will run regular routes to supplement the electric railway systems, and will be in constant touch by radio, the speeds attained being such as to leave the fastest aeroplane of to-day well behind.

The man of the future would regard us as terrible wasters of time. We complain even now if a four hours train is three minutes late, but the time will come when such wastage of life will not be relative, and our appointments will be made to the decimal of a second. All these changes take place so slowly that they are difficult to see. We to-day can realize such great facts as hunger and cold only in the manner of animals. We know that war is an over-rated pastime, but our debased ignorance tells us very little of the relativity of time, or the manner in which we depend upon this function for a living. To India and back in a week will astonish no one. Speed and comfort are all that need be considered for the future of travel, for time will have shorn the uttermost parts of this earth and of others

also, of all glamour and relieved us of a little ignorance.

Passengers by water will not for long be divided into those who hope the boat will sink and those who trust it will not. Tunnels, underwater lines, and power cables round the world will give us education, and the small neat world's newspaper of the future will quietly take its place as the yacht of the poor in terms of travel romance.

Travellers should bear in mind that the discomforts they endure are due to their inability to discuss their affairs unless their friends can see their hands and feet, as well as their thought. It is most distressing, but the time and distance function is difficult to change without delay. Our transport to-day is the stage coach in the historical records of 1000 years to come.

We shall have tunnels between other places besides England and France, and as we ride comfortably through them we shall discuss the next improvement in comfort and speed with a few jeering asides at the limitations and prejudices which render the first tunnels so expensive, so badly lit, so cold or whatever objection our children's children's children are sure to find.

CHAPTER X

MEN

THE men of the future will certainly have greater intellectual strength and reasoning powers, but these changes will not be so pronounced as in the case of women who have to make up for centuries of "marking time" in this respect. They are still however very far from perfection—an impossible state—toward which their development will be only a steady approximation.

The past centuries have seen a gradual change in the human race. Our physical powers have become considerably weaker, our senses are far less keen, and our teeth are worse. We would be quite unable to stand for any length of time the hardships of life such as it was thousands of years ago. This gradual weakening process of humanity will not, of course, stop at the present, and in considering the men of the future it must therefore be expected that they will be far weaker creatures than to-day, and that they will rely on many artificial aids for existence.

It is known, however, that as men and women have progressed, nature has kindly introduced many correctives to enable them to meet the changed conditions of life, and without these existence would have been impossible. This process will continue into the far future.

An excellent example of these correctives is the manner in which time has gradually atrophied our senses as our brains have developed. If by an accident of birth men had—like the birds—eyes possessing a more relatively magnifying structure, they would see sights so horrible as to revolt present day intelligence. Their clothing and homes would be revealed as masses of writhing "things"; a study of life in the water might only be expected to weaken their ideas of cleanliness, and pampered pets would be revealed as nests of germs. The most studied glutton blessed or cursed with these microscopic eyes might find it rather more difficult to appreciate even the purest forms of food. Cheese alone would daunt the most fearless! To a dog, with its relatively lower intelligence, a trip through the smells of the most exclusive thoroughfares of the world's cities would reveal nothing unpleasant. But man, with the keen sense of smell inherited from his ancestors, could not live in the subtle stenches which his intelligence knows to be the cause of disease and death.

Life in the noisy cities of to-day would be impossible to the nerves of modern men, should they have the ears of, say, an antelope. This has been proved recently by tests from the roof of a London building during the silent hours of the night.

With the aid of a receiver and radio valve amplification telephones, men's ears were attuned to the probable pitch of those of the early cave men, with surprising results. Normal voices became discordant, bellowing and shrieking, and conversation was even heard which was taking place in neighbouring premises. Footsteps were distinct a quarter of a mile away, and when passing close sounded like nothing less than a stampede of elephants. Trains at a distance of a mile resembled the hideous din of battle, and the noise of wind in trees thirty yards away was sufficient to prevent sleep.

To see a bird on the ground listening for worms is but a reminder of man's good fortune in not possessing the ears of a bird, and of the bird's good fortune in not having the intelligence of a human being. To lie down on the grass is a simple pleasure, the sounds of worms would remind a man that he might join them one day.

Men are deteriorating physically every day with their senses, and are becoming relatively a race of weaklings. As our boasted civilization

progresses, men will be able to stand even less hardships, and protective measures will be essential to avoid the rain and to guard us from the glare of the sun. They will seek to improve their bodily powers by grafting and electrical treatment, and by many permanently fixed mechanical appliances—such as locally attached eyesight correctors in place of our clumsy glasses. It is therefore not illogical to assume that the day will dawn when the inability of men to bear the slightest hardship will result in their remaining in their dwellings and only venturing into the open with special precautions, for mankind is swiftly approaching the stage when life will be sustained mentally rather than by physical power.

Any striking physical changes in the actual structure of men cannot be expected until far into the dim future, for thousands of years are essential to effect any such alteration. At earlier stages, however, our variations will be more subtle; for example, the age when men travel by moving pavements and stairways to a waiting conveyance will naturally find the legs becoming of less importance and atrophied through little use. It is certain, too, that just as the meals of the present day are of less importance to us than were the enormous feasts of olden days to our ancestors, so will the man of the future pay even less attention to the act of feeding. It is the

preparation that will be more scientific. One meal a day will certainly suffice, assisted, if necessary, by snacks in a highly concentrated form, and this meal, instead of being regarded as an important function for fixed hours, will be taken at any odd moment, in the bath or when travelling on the moving floor of one of the big stores. Advanced methods of radio communication, moreover, will very considerably reduce the necessity for actual travel, and in every walk of life it will be a case of science bringing the mountain to Mahomet.

The intellectual standard of the future will be high without exception, in comparison with our present dog-like mentality. Thought will be an infinitely quicker process, and the fact that telepathy, or thought transference, will be understood, will ensure increased efficiency, more comfort and a general speeding up of life. Business men will most certainly use a more universal language and a shorter system of spelling in place of the present unweildy methods; their amusements will be of an intellectual variety.

Man's treatment of women would to-day seem most casual, because women will compete with them in every walk of life, and men would not hesitate to stop them in the street to ask for a light for their pipe. No time will be wasted

on trivial phrases, such as "Good morning" and "Lovely weather."

All men—and women—will work, but there will be nothing approaching "sweated labour," for all work people will be educated and will have interesting work of an intelligent nature to perform. Foolish troubles will be practically unknown, as all will enjoy working and there will be no "under-dogs" bound down by incapability and ignorance to a continual round of monotonous toil. The introduction of innumerable scientific labour-saving devices will not in any way promote unemployment, for large numbers of skilled workers will be needed to produce and operate these machines. All workers will be skilled, for the non-skilled work will be entirely performed by mechanical apparatus. Even to-day men are seldom seen with some soul-killing profession stamped upon them.

By reason of their greater protection from the effects of climate, men will be less liable to contract illness, but there will be many new diseases, or rather new developments of the old ones due to changed conditions. There will probably be many cases of nerve trouble owing to the discovery of new bacteria.

Cheque books of some type or other will be in more general use, and, although a certain amount of money, or tokens, will remain in circulation,

there will be a comprehensive system of credit and exchange that will render it unnecessary always to carry loose coins in the pocket.

The laws governing future marriage and divorce will certainly be very different from those of the present day, following the lines of justice and absolute equality of the sexes, rather than man-made laws and sentimental agreements.

Let us take a peep at an average man on an average day in the future—the comparatively near future—and thus get an idea of the changed modes of life that the next few generations will experience in the normal progress of our civilization. The future man, after his night's rest in a well heated and ventilated bedroom, will be called punctually by a radio alarm clock set to pick up the particular signal at the time that he wishes to rise—probably nine-thirty—and will take a few moments radio light treatment or massage in order to keep fit and alert for the day's business. If it is winter, his room will be lighted efficiently and artistically, and he will waste very little time in donning his synthetic felt one-piece suit and his hat—the latter will be worn practically continuously owing to the prevalence of baldness. He will have to exercise care not to put on his wife's clothing by mistake! During his dressing and quickly dispatched breakfast snack, a pleasant toned loud speaker will keep him informed of

all the world's happenings, while his television machine will give him glimpses of the events mentioned in the news. By altering the wave length on his directional short wave selective set he will hear just the type of world's news that interests him at the moment. He will hold international views on all subjects and not restrict his views to mere parochial happenings. His food will either come from the communal kitchen by tubes, or will be delivered daily from the big stores to each house, hot or ready to be warmed up. After reading any automatically recorded telephone message that may await him, and glancing at the radio tape machine that has recorded news received while he slept, he will leave all necessary instructions to his wife or staff, on a dictaphone.

Should he travel to a neighbouring town, he will make the journey in a comfortable closed car, keeping in touch with his home and office by radio, and dictating if necessary to his pocket dictaphone. He will read his newspaper, which will be in a smaller concentrated form but will not be superseded by radio communication, and will save cuttings for his children for he will be enthusiastic about education and not content to live in his progeny. His work will be a hobby if he is sensible, for various devices will have taken the grind from labour. Cheap and efficient

electrical supply in every building will improve the women's status, and give her opportunities to broaden her mind, and a man's wife instead of living as a physical help, will be really one with him—or leave him boldly and unashamed. Driving his car into the building it will be carried by lift to the door of his office, and stored in a warm dustless place until next required. In his office he will have the help of efficient business devices, good automatic telephones, getting the right number every time, and news by radio from everywhere, for the whole world will be his market. Should he wish to go shopping, a moving stairway will carry him to the street where moving sidewalks will convey him to one of the huge shops where every commodity without exception will be obtained under one roof, moving floors carrying him through the departments.

It is more than probable that his own home will become his office, kept in touch with everyone by radio, for he will be past the days when men put on spats to impress one another, and have their offices in one street because they sell diamonds, and in another because they sell pastry.

Should he for any reason prefer to go to a cinema, he will not find the titles remaining on the screen long enough for any child to read, for education will have advanced. Half-a-dozen

films will be shown simultaneously on the screen —not all dealing with vamps and cowboys; he will glance at the programme, and by setting his observation apparatus to the key number of the film he wishes to see he will cut out all save that one.

His principal entertainment will, however, be brought by radio to his own fireside from all the world over, and he will keep in touch with his friends by the same source. The radio set principally used will, of course, be of the pocket variety, and a certain amount of light metal in the male headgear will take the place of an aerial for transmission and reception; women will probably carry their apparatus in a bag or small satchel suspended from the waist. Should he not be content with radio communication with his friends, aerial charabancs will carry him cheaply and comfortably to all parts at enormous speeds; a visit to practically any part of the world will be merely a matter of taking a week-end from duty. Most forms of illness of the future will be dealt with by gentle corrective radio treatment taken while asleep, and growing school-children may also be built up by this means.

Finally, the man of the future will shrink in horror from slums, illness, and glaring contrasts, and would certainly view with loathing our dark streets of to-day whose public houses form their

only oases of brightness. His children will be educated and cared for to a great extent by the state, and kissing and handshaking will, in all probability, be out of fashion. Most phases of life in the future will be controlled by the Government, and it is doubtful whether liberty of the subject will exist to any extent as we know it. Children will most probably be left to a departmental committee to make or mar.

There are, of course, many types of alleged men at the present day who will not be found in the future. The idle lounge-lizards of the hotels, with their yellow waistcoats, white spats, and scented buttonholes, who squander the money made by others, on drink, dope, and dancing, will have no place in the intellectual bustle of the future when brains will be the deciding feature, and when it will be the *mind* and not the *bodily* appearance that will count.

The men of the present, although they may be prone to the belief that they are perfect, are really not very far advanced from the state of primitive animals—the veneer of "civilization" is but a thin coating—and it is very certain that if mankind lets one day pass without learning *something* they will fail to maintain the essential speed of progress to far better things. To-day a young man is ruled by sex; the blending of male and female, (few one hundred per cent. men

and women are to be found), will maintain advancement and lead us to a period where thought is not broken by the smell of a beefsteak, a scented woman, or an expensive garter.

CHAPTER XI

WOMEN AND TROUSERS

For women there is probably no topic provoking more interest than—women. It would not do to take a ballot of mere men on this subject to-day. Chivalry, the creation of an ideal where nothing more substantial exists, will die before long; men will cease to remove their hats to women who, if they wish to grow strong, must deprecate such admissions of weakness.

In this chapter it must be kept in mind that the subject attempted is the *future* of women. The past might certainly make better reading, but the future of women presents such a vast field for improvement that many big changes are assured. The biological status of women to-day shows clearly that great development may be expected to take place in the economics of sex in the future, when they will have educated and advanced themselves more rapidly than at present seems possible, and will be in a position to compete with man in every way.

There are many more women than men in this world, largely because male infants are exposed to greater perils at early stages of life and industry. This naturally cheapens women in the market and, with physical disadvantages resulting from selection, it is a hard thing for them to overcome. Their method of helping man is by spurring him on to fight for them. The future, especially in marriage, is always better than the present. Women waste vast sums on trivial decorations, they employ lap dogs as a foil, and from a perusal of the papers devoted to their interests their real character may be assessed.

There is not the slightest doubt that one of the most important factors in the future advancement of women will be rational birth control. All women will be educated to a far higher standard of intelligence when childbirth is less frequent, and when science is sufficiently advanced to prevent useless and imperfect children being born at such expense to the mother.

Women cannot educate themselves to any great extent while childbirth and infant-feeding allow such a drain on the vitality, and the children of the future will be scientifically and "incubator" reared.

The women will dress logically, in sensible one or two piece clothing in place of the pitiful conglomeration of clothes worn at present. They

will wear their hair short, and will not be prevented from advancement of intellect by constant attention to domestic details. They will be man's equal, not tied to him by conventions, and the absurd actions now referred to as chivalry will be relics of the past. Confessions of weakness invented by men to persuade themselves of something they know to be untrue are no help to women. To women beauty is purely a question as to whether objects match their complexion or clothes—snow is not beautiful if it clashes with a hat.

It is indisputable that at present the average woman is both mentally and physically inferior to man, and however much she craves and strives to ape him, the concrete fact remains that she has far to go.

One reason is that her brain is of a lower capacity. It is possible always to point to one or two women who have excelled men, particularly in gaining academic distinction. But one swallow does not make a summer. Scholastic prowess proves nothing; it is but an indication of a good memory, and not of the power to apply knowledge, which is the true test. Women may claim to be original, but they are too lazy and emotional to invent.

"Man has always thwarted us" is woman's universal plea. The obvious answer runs:

"here again is proof of her inferiority." If he has thwarted her it is because he has always been the superior mentally and physically, or why should she have allowed him to reduce her to this alleged slavery?

It is certainly not a question of brute strength, but of intellect. An elephant is stronger than a man; but it has been overborne.

Women cannot even control those departments of life supposed to be their especial province. In cooking, dress designing, and decorative art, who is at the top of the tree?

Woman is not even loyal to her own sex, for she prefers to work under a man because she has faith in his sense of justice and because she cannot trust another woman in authority. Thus women fail because they cannot and will not combine. The future will change all that.

Their claim to sex equality is premature. It is not long since they were boasting with one breath: "Women are winning the war," and in the next complaining of the "Bombing of defenceless women." It is not logical to make munitions and then to complain because munitions are used against you. This again proves what a creature of emotion woman is to-day.

She is not fitted to endure the immense strain imposed by war, her emotions being close to the surface. There is, of course, the claim that

woman endures pain more stoically than a man—but a dog has even greater endurance because it has a yet lower mental appreciation.

Is it not an obvious fact that woman's main motive in life is to "catch" a husband? Her very actions prove it. Do men show the contents of their wardrobes to one another as a hobby? In decorative art, woman's principal interest is the question of eternally attracting the male. Stand outside a draper's shop and note the faces of the women peering into the windows; catch snatches of their conversation in the streets and public vehicles and it can be realized how absorbed they are in dress and sex.

When women of the future pay less attention to dress and more to the facts of life they can then hope to become educated. When they adopt useful attire and think less about skin lotions they will progress.

It is very certain that women will adopt trousers not only for occasional convenience but also for every-day wear.

Although it is not possible to obtain accurate statistics of the number of alleged fully civilized women who have worn trousers during the past century, it is a fact that the tendency is increasing. The term "trousers" is not restricted to the identical garment worn by men, but should be understood to include the various styles of

"divided skirt," riding breeches, "shorts," and other variations of men's nether attire which have been utilized by women.

Fifty years ago the sight of a woman in trousers would have shocked everybody, indeed the first "bloomers" worn by women cyclists aroused a storm of derision. At the present time, however, the spectacle of a woman in trousers is so common that it interests very few. Thus the first great difficulty, that of psychological prejudice, has been successfully conquered.

There is no doubt that women like bifurcated garments, one indication being the present vogue for pyjamas; other signs are the adoption of men's styles by lift-girls, land workers, cyclists, hockey players and mechanics.

Women adopted trousers for the sake of convenience, and as increasing numbers of them are entering pursuits that were at one time regarded as masculine, what was a temporary convenience has become a permanent essential. When doing a man's work a woman wears his clothes because her skirt is not suited for the task before her. In some cases, as when she is engaged among machinery, a skirt may be a danger to her life.

It is of more scientific importance that clothes should protect the body from cold and dirt than that they should merely surround it and be decorative. In the past it was considered in-

delicate to admit the physical fact that women possessed legs; but now that this tradition is no more and everybody is ready to admit that women have two legs, there is no inherent reason why they should not use breeches. Attraction by brain is better than by physically suggested concealment.

The fact is evident everywhere—even in Hyde Park where we see many women riding horses astride—that the wearing of trousers is increasing; and if we plot a graph showing the tendency in dress we find that the curve indicating the number of women wearing trousers began near zero some eighty years ago and has risen steadily ever since.

Consider for a moment that unscientific thing, a woman's high-heeled shoe, which has for so long been popular in spite of its damaging effect on health and crippling of the feet. It is not nearly as sensible as a man's shoe and is so constructed as to suffer three times as much pressure per unit of heel area as is sustained by a man's, with the result that in the first place it is dearer because it is difficult to make and, in the second, because it wears out far more quickly. High-heeled shoes are worn because they accentuate peculiarities and help to enfold women in the veil of mystery she has so long used to attract the curiosity of men. The future will find high heels as extinct as the dodo.

Trousers, of course, are not so mysterious, and the wearing of them will diminish to a certain extent woman's attraction for man. Yet in the future it will be better for both sexes if men get to know women as they are and harbour as few illusions on the subject as possible. The wearing of trousers is a step in the progress of women that will undoubtedly be taken in the future with beneficial results. It may cause a "split" in the ranks of feminists.

Physically, as we know, women have always been inferior. Men can indulge in animal pleasures without harm, women cannot; and that is the reason why faithfulness in a woman is more necessary than in a man. Biochemical reasons take more than a law to alter. Man has given woman equal rights, but the transitory period will be interesting.

Real education among women is less than a century old, and the typist and business girl of to-day is often the domestic servant of yesterday.

The very modest educational and intellectual progress made by women up to the present is all that can be expected, but the future holds out bright hopes. Quaint clothes must go first and with them sex mystery.

Undoubtedly an increase in mentality as apart from sex selection is responsible, but women are beginning to realize that true beauty is not the

facial perfection represented by the type we see on chocolate boxes, but is the beauty of intellect, and that a woman with imperfect features illuminated by the light of intelligence is lovelier by far than the "doll-woman" of the past.

At the present day women are best described by the phrase "whole-hoggers." The good are very good and the bad *very* bad. Thus the goodness of a woman who will, without hope of reward, devote her whole existence to caring for a drunken brute who is incapable of appreciating her, is a miracle before which all men stand in reverent homage.

At present women appear to believe that their only hope of progress is to conquer man, and their methods employed with varying success are, (a) Accentuating peculiarities of face and figure which are known as "beauty," and (b) Designing clothes to render (a) more conspicuous.

Now that women are just beginning to work with their minds it is evident that progress is taking place by the departure from frills, both visible and invisible. Certainly women of the future will have to display both educated intellect and character. "Prettiness" will be a drug on the market and probably well under the control of the "appearance surgeon."

The rationally dressed woman of the future may have the education of her children taken

entirely out of her hands, and she will be relieved of the necessity of feeding them, so far as science can make this possible. "Incubators on the hire system" is a likely advertisement that our great grandchildren may see. It is certainly more interesting than the descriptions of Lady Blank's "coming out" dance with which we are so painfully familiar to-day.

Women will take a really active part in politics and local affairs. At present they can hardly claim to do this. More time will be devoted to perfecting things instead of relying too much on men in every sphere of life, as they do at present. Women will have to learn to forget themselves and their bodies in order to encourage broader lines of thought on life.

The future will find them taking intelligent part in every profession on air, sea and land, without exception. Then is the time when they will be able to claim to be really intellectual helpmates of the opposite sex. An old man hates to be told he is helpless, a woman wallows in being nursed. Baby women and pet names must go!

CHAPTER XII

CLOTHES

CLOTHES were intended originally as a protection. The varying decoration of male and female for purposes of attraction has been seen throughout nature, and has led the human race to the monstrosities now called clothes.

When men want to enjoy themselves they put on uncomfortably cold clothes with starched breast-plates because they dare not appear strange; they also wear boots which would be much better if made from synthetic materials, in one piece, more suitable to modern conditions, and waterproof. Women to enjoy themselves have to take off half their already scanty clothing. They wear clothes useless to themselves in most weathers, and dangerous to men in that they envelope the female in mystery and cause the male to clothe her in the moral shroud of the ideal woman.

Here is woman's opportunity. Let her design new clothes fulfilling two conditions: they must

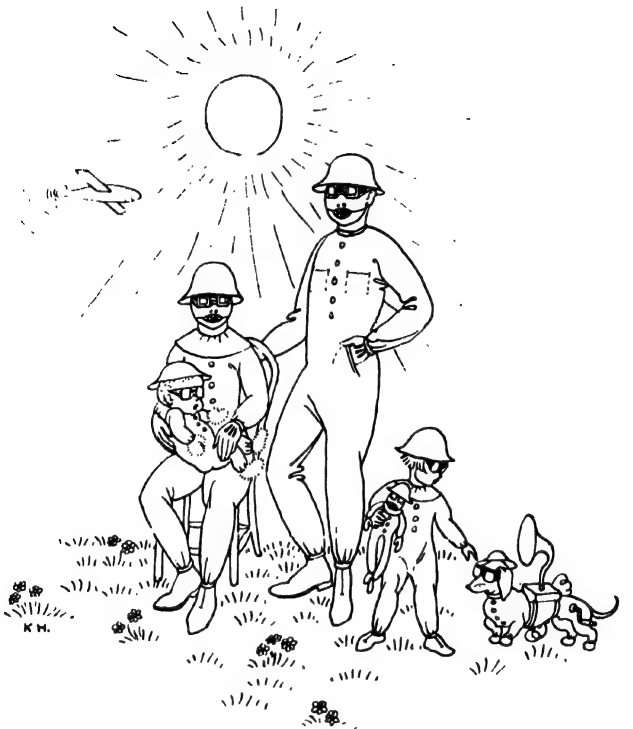
be sufficiently sensible to give real service and protection against hurt, cold and wet, and sufficiently complete to avoid the unwelcome attentions of the police.

Appearance is largely a question of imagination, and women must be excused many of their extravagances in the direction of attire on the grounds that their mentality does not permit them to feel pain with the ease of the male, and that their bodies so often require concealment from physical disability.

The future hat, which will be worn practically continuously owing to the prevalence of baldness, will keep off rain, dust and sun, and be unharmed itself while it adequately protects the skull. Doctors will not feel compelled to wear glasses, side-whiskers, top hats and coats difficult to sterilize in order to make a living.

As radio appointments will be made to the second by quick thinkers, it will be necessary to dress quickly. Two garments only will suffice, an inner one for convenience of washing, and an outer suit shaped like the present boiler suits, which could be electrically heated when required, by wireless or plugging into a circuit. Two minutes should suffice to dress anybody a few centuries hence.

The expense of clothes at present, to those who pay their tailors, is very great. With the



A SNAPSHOT IN A.D. 3000.

face p. 108

dawn of a mechanical era simple clothes will be essential, and such absurdities as bell bottom trousers will go. The future man will dress in an efficient boiler suit, made properly of synthetic silk or felt, partly metal-lined for his radio reception and health treatment. He will be made "clean-shaven" just as he is vaccinated. Moustaches were intended originally for filtering out the fish as we drank from the streams, but the future has no need for germ collectors and men, judging by the present, will seldom drink water.

Women's clothes will be similar to men's. At present clothes separate men and women; this is bad in both senses. Women lash themselves up in different places and wear clothes at present that in Paradise would be hard to keep clean. In future they will not affix jerking pieces of wood to their heels in an attempt to conceal their shortness of leg, neither will they use garments as a dressing for their self-sale advertisements in the weekly press. Future women will not be judged by the artificial grapes and dead birds hanging from their shoulders and hats. It will be the mind that matters. We do not want to see a man's dress; it is his thought that should intrigue us, not his spats.

Apart from *esprit de corps*, an effort to throw personal responsibility upon the past; to see

soldiers who are professional fighters wearing fur monstrosities on their head and animal skins upon their bodies, is far more funny than the German idea of "fierce face." The Boers fought no worse in South Africa for wearing ragged utility clothes. Men will be less impressed by flags, idols, and golden eagles as time goes on and will want more detailed mental stimulants.

Of military clothes in general, and of naval customs one hardly dares to think. The services are not remarkable for lack of waste, but it is a pity that waist of another kind should be utilized for the support of expensive gilded weapons which can never be of any possible service to anybody.

The senior service has yet to undergo so dreadful a trial as will root up the custom of spending money for the purpose of expression. Doubtless we are all tarred with the same brush but the sea was always renowned for abundance of tar.

Sleep might well be aided by radio treatment, and the men who need only to sleep on three nights in the week will have unrivalled opportunity for making progress. The study of the working of the subconscious mind may lead to the avoidance of much of the wasted time now devoted to sleep. It may even be possible temporarily to re-charge the exhausted human system at the end of a day, by a mild electrical oscillatory stimulant taken in a few moments.

The absence of feeble animal intellects will soon end the present system by which a few alleged fashion experts foist one absurdity after another on their followers with the sole view of enriching their pockets. Modern clothing must adversely affect the mind, and if we cannot realize that education can cure lack of intellect in time and help ourselves as well, it might be better to prevent the propagation of our species by persons who require the stimulus of dress.

One difficulty of future people regarding their clothing will be to prevent confusion between their own suits and the suits of their womenfolk. But clothes will then fulfil their original function, they will protect and they will suit the sexes for which they are designed, until that far off period should arrive when sex is no longer necessary, and when our minds become so powerful that we shall not only understand the value of evil, but shall be no longer the slaves of our bodies and of the coatings we give to these troublesome and expensive collections of bones and sackcloth.

Women hang the teeth of animals round their shoulders, arranged to attract the everlasting male; they poison their skins and hair to improve upon nature's choice and to provide a false covering for worship; they practice making of beds to look as if they had not been laid upon; they occupy their minds with displays of figure and clothing

and each other, but they will never help us to escape from the top-hat or to realize that one man's clothes may be another man's downfall.

Let us relegate dress to its proper place; with other forms of dope, dancing, and marriage.

CHAPTER XIII

DOCTORS

MANY years ago it was universally thought that illness was due either to evil spirits or to behaviour depending as regards malignancy upon the mental belief of the subject. Thus in the earliest attempts to fight disease the methods employed to dispel it were the weird noises and dances of the native medicine men, and the sacrifice of both men and animals to propitiate the evil agencies.

Surrounding all this ritual was an atmosphere of mystery, partly from ignorance and partly because it was felt that as the mind controls the body it is likely to control its bad as well as its good periods. This belief appears to be the basis of faith healing, but it is forgotten that if health is a natural state, mental *de-control* causes the illness. How therefore, can the mind be made stronger and overcome the original lapse without help? This help is supplied principally by sympathy and the mental influence of surroundings,

and secondly by assistance to the mind provided by the surgeon's knife or doctor's draught.

A man, when he is told he is ill, frequently becomes ill, while to discuss any particular disease is enough to make some people feel the symptoms. Such symptoms, in all probability, have been stored through the centuries, and given to mankind through hereditary dreams, or in generations giving us complex brain faults which are sometimes cured by allowing the possessor to carry out the thought of process denied to the original sufferer.

The medical faculty of the present day are distinguished by their wonderful pluck and wishfulness to help. It is most unfortunate that to help them to control their patients they must assume the habitual air of mystery, and profess to the best of their ability a knowledge which they know is lacking. Doctors are afraid to be original.

They dare not, for instance, condemn all patent medicines, for they know that many are really good and useful; in respect of their own prescriptions they also know that Latin words and badly written prescriptions cannot conceal or excuse ignorance.

In the future there will be a closer connection between science and medicine. Science produces many wonderful things which cannot always be applied to the body. Iron and insulin have been

known for many years, but it is their proper application to suit the needs of mankind that has presented the important problem.

Doctors have always relied upon the scientist to provide their appliances, such as X-rays and the microscope, and to the bacteriologist and chemist to produce applicable solutions. Doctors have not yet discovered what new wave shapes may be employed to cover even a small field of electrical treatment, or the explanation of colour effects as curative agents.

Everything in nature differs: there are no two leaves on a tree alike any more than there are two human beings alike; and yet doctors of the present time prescribe the same solutions for one and all in a most primitive manner. When they hear of any new medical preparation they cheerfully issue it to their patients in the hope that it *may* prove to do good—at all events it is a useful experiment, although medical science should be beyond the stage of making experiments on fellow creatures.

Doctors in the future will be really efficient psychologists, and they will not have one treatment for all. A few years back psychology was considered merely a "stunt"; now its value is recognised, and it is practised in the big hospitals. The future will see great development along these lines, such, for instance, as operations to cure

temper. If people's bodies are "non-suited" by mental anæsthesia and hypnosis, their minds can be attacked. Even now it seems likely that the electrical forces and oscillations which build up life are being discovered, and when it is possible to interfere and say this or that oscillation is wrong, people may then find out what is the meaning of disease.

Sex, the one topic of conversation to-day, will be on a higher plane; it will be on the plane of the atomic tremolo of life, and not on a par with doctors of the past who bitterly complained that the curative value of crocodiles' dirt was falling off owing to the bad supplies they were receiving.

It is a strange factor in our modern civilization that some of the most beautiful things in the world are barred from all conversation on account of their alleged indelicacy. Medical conversation will have a valuable educative effect and will remove much encrusted ignorance from the world. If no other result be obtained, an improvement in health must certainly become apparent.

Doctors will eventually know enough of birth problems to look after and help mankind by prevention. They will certainly not allow the unfit to propagate, and some medical knowledge will be taught to all to prevent many horrible diseases.

Some women may even be relieved from the crushing bar of sex; illegal operations will seldom be necessary, but certainly they will be performed openly and with skill, should the worst occur.

Birth-control methods will be vastly improved. The discovery of a simple drug which would render persons sterile for a few hours would alter half our civilized life and confer a vast fortune upon the inventor. X-rays will render a man sterile; the period may eventually be controlled or corrected by some other form of electrical emanation.

The continual study of wave motion will be of great benefit to the medical faculty. Some lights benefit us, some kill the myriads of cells that make up our life and which in themselves may be complete.

People are apt to say that nothing exists that cannot be seen with a microscope; no doubt the ancients said this before they had that instrument. There are many mysteries of nature yet to be unfolded. The human eyes are at present sensitive to some things and not to others; they cannot see heat, but heat may be visible to *some beings*—even if on another planet. It is thought that a table is solid and yet X-ray eyes would prove that it is not. It is just the same with disease; if people knew all about wave oscillation, not merely electrical messages but natural oscilla-

tion, it might lead to the full understanding of a thought.

What is disease? Not the lump of diseased tissue cut away by the surgeon—that is the *result*. Disease is occult, little is known of it, just as little is known of light and speech. The doctor of the future will understand the internal secreting glands, psychology, and the uses of bacteria. He will admit that thousands die now who might be cured if the medical faculty attached sufficient interest to mass research and progress. Surgical marvels are only mechanically of interest, the result of initial ignorance. Surgery is an art, not a science.

During the early days of broadcasting it was suggested that wireless would assist the deaf to hear, the dumb to speak and the bald to grow hair, and it is extremely probable that as this force becomes more extensively used and understood, other cures will be effected and radio oscillation in some form will prove invaluable as a health-giver. Just as electrical massage brings health to our muscles to-day, so future people living in an atmosphere full of radio and other oscillation may find that it has a gentle curative effect on the more delicate organs of the mind. It is certain at any rate, that part of the treatment for practically every ailment will eventually be oscillatory treatment taken at home or while

asleep, and a greater knowledge of electrical matters will lead to health improving methods.

If surgery should advance alone, or make greater advance than medicine, the time may be reached when the wealthy man can buy a new scalp to cover his baldness, and even buy other portions of the human body which he has worn out by neglect and gross misuse. At present this work is confined to incomplete organs, but there may be striking developments in the future.

Doctors do not yet profess to understand the meaning of cellular life, and the day when additional body cells can be grown to order for corrective surgical purposes is not far distant.

Hospitals of the future will take more care of the mental atmosphere and its effect upon patients, and will certainly not be allowed to remain as beggars—any more than "flag days" would be held nowadays to support the Navy. "Voluntary contributions" are apt to prove a bar to progress.

Doctors will seek to improve the human body and will vastly improve our life-span by much grafting, but there is not the slightest doubt that the greatest curative measure of the future will be electrical. Rejuvenation will doubtlessly be practised and may be better accomplished by the use of men instead of animals.

It is not long since that the world laughed at the elixir of life, to-day it scarcely excites more

than passing comment, but if bodily rejuvenation is attempted, it is necessary to begin with the mind. No doctor in the future would be permitted to render a body young and a mind old. Nothing is so horrible as a painted old woman, and a law may be framed in the future to prevent the results of unnatural grafting, as at present they would deal with undesirable experiments of a veterinary nature.

Medical science professes so much more than others, and knows so much less. The cold we catch on Sunday is seldom cured by the following week. We laugh at measles and do not know what good it is to us ; we welcome it as something necessary to be endured and got over. We wear thick glasses at a distance from our eyes in place of corrective surgery or lenses attached to the eye itself. Our teeth are rapidly becoming of little use to anyone but our dentists, and we are helpless. False teeth and bad eyes will not debar from our fighting forces. We patch up the degenerate who in years gone by would have been cast out as unclean. And still we reproduce our species, save the sick, cure the sorry and forget the generations to come.

If faith has such effects as we see each day upon the human body, and if our minds are as we know, little better than those of dogs, what will be the result on the health of the

future mankind when mental control is taught as a science?

Some will tell us that disease and evil are of the mind and do not exist. It may well be that to a being of intelligence they are but means to an end, but as we are far from intelligent how can we hope to deal with a mental system and with thoughts whose very meaning is almost a blank to us?

The faith cure is not new; many medicines are but the anchor to which we cling, that our minds may more steadily grapple with imaginary sickness. Experiments have taught that apparent illness can be created by thought. People who have been shut up in air-tight vessels and told that they will suffocate, have shown every symptom of exhaustion long after silent shutters have been opened to give them air. Men of medicine tell us that the substitution of water for a mustard plaster will produce a blistered skin in the case of a weak-minded patient. If the future tells us, as it will, how far by taking thought our bodily ills may be influenced, does it not seem possible that even the most serious disease may be controlled by the operation of minds far stronger than our own to-day?

The cumulative effect of nature is beyond our time-bound relative knowledge. Microscopic happenings alter continents. A woman with a headache may cause a world-wide war. But to

suggest that as yet we are so intelligent that we can neglect the aids of medicine and science as servants of our mind in the act of healing, is as futile as platonic friendship and equally negligent of the factor of time and recurrence.

A savage cannot believe in a God without an idol; we are very little superior to the savage. Medical science cannot be separated from other knowledge. It is a profession, it produces money, whereas it should be a hope to learn. It is not a religion. The modern medicine man will need to work very hard indeed if he is to compete with the spectacled and sympathetic young man in the chemist's shop round the corner. We can only endure the imperfection of to-day by the hope of to-morrow. What a motto for a doctor and the all-British pharmacopœia!

Medical men have not yet determined the extent to which the body is operated by the mind, they have established no line of division, and at present are restricted to teaching what they believe to be the truth by a very accommodating use of metaphor. Why is it that the mind can sometimes be rendered more free by physical exhaustion, or by the hypnotic effect of a fidgeting limb? Muscular action due to an electrical effect based upon cellular construction! What an illuminating statement! How like the medicine man *we* shall be a few centuries hence.

CHAPTER XIV

MARRIAGE AND LOVE

It is really incongruous at the present time to put these subjects together; it is probable, however, that the general development of women and their participation in active politics, combined with broader points of view of both sexes, may lead to improvements in this respect in the future.

In the future, people will not marry in the Church to make a show, and then apply to the Courts to dissolve what the Church tells them is insoluble. They will have more courage and dissociate the two. The important point of view will be what the bride *thought* at the wedding, not what she *wore*!

The really important religion to teach is that of love. Tell a bishop that he must not be referred to as "my lord," and see how far his human interpretation of a beautiful religion carries him. In future, people will not be content to smother the marriage service with dim mysteries, but will understand more—and have

more to understand. Neither will they allow "their lordships" to veto laws on marriage and divorce made by the people, or in any way entrust the country to people who may be congenital madmen, merely because "their fathers were also."

A contract should have a time-limit, and surely it should include an arbitration clause to prevent strikes. This solution seems far more simple than polygamy, and certainly gives more women a chance. To-day unfit persons produce many children; those best qualified often have none. The State will not permit this in the future, when enlightenment has given us self-control. Those who are allowed to have children, or women who are producing children to the orders of the State biologist, will have to make proper provision for them: this might be controlled by a State department, who would ensure that no children are handicapped in life by lack of nourishment and education in early years.

People are allowed to make mistakes in everything except marriage. A wedding mistake is a life-sentence to the parties concerned, and they have either to commit, or pretend to commit, "crimes" in order to be freed, or else to live in a most unnatural state of both mind and body.

It seems a pitiful slight upon the Church when they tell us that marriage is—"until Death us do

part," for the next moment they tell us that it is really the part of life *after* death that matters. Can we be blamed, therefore, if we talk of contracts, of forbidden children, and of the unfortunate fact that a woman's faithfulness will always be necessary until we learn how the electro-chemical adulteration of the body and mind can be remedied by the fusion of sex?

Human beings are as yet very like animals. All things are merely matters of opinion, and the most eminent have to prophesy, because it is all they can do. Facts do not exist, although it is pretended that they do in marriage. Why not admit that a man needs several women to keep his entire brain busy? At present he can indulge in his desires without physical damage if he has been properly educated on the subject (as he will be in the future), and there are many more women than men. The inference is obvious. Very few women are really satisfied with their own possibilities, and there are seldom women without some proportion of the male in their composition. In the future, women will legislate to a great extent on such subjects as birth-control. They will certainly cease to exploit chivalry, which is simply a confession of weakness, and they will realize that one wife will never make a contented husband.

The trouble with marriage is that love is so

beautiful; and few people have enough intelligence to know, appreciate, or perform such a beautiful thing. Men and women of the future will understand love scientifically, and consequently respect it more and harbour less illusion. Young men often realize too late the meaning of life; they do not find out sufficiently early that companionship cannot always lead to co-habitation.

The most depraved of men is not content with *any* woman, and the smallest element of selectivity implies the existence of mental compatibility.

What is the result of our present marriage-laws? Lies! It is lies that necessitate lawyers, cause wars, divorce, crime, and often disease. In future marriage the woman will *not* change her name.

It is to be hoped that, as surgical science improves, it may be possible for doctors to keep "dead" people sufficiently alive to find out truths by thought-operations after heart-massage. The doctor of the future will think nothing of helping his friends to forget sex, just as now-a-days many make money by helping old people to remember it.

The future may see the spectacle of a brain apart from a body supplied with energy and operating alone long enough for science to tell us more about its unknown senses and functions. The use of fate, the shortness and general speed-

ing up of life, and the increase of oscillatory ranges of wave motion may teach us anything, from the understanding of heat propagation by an electric reflector, to a general grasp of the guiding principles of love.

Eventually the marriage laws of to-day will be regarded as people now consider those of the Eskimo. Consider the marriage condition of 1600 A.D. compared with those of to-day; there has been progress and there will continue to be improvement.

It is passing strange what a difference can be made by a few moments of relative time. In some countries marriages are only legal in certain hours. Does a mistake in time, or the absence of a few moments ritual, which is far from universal, render the contracting parties immoral? Women should encourage their men to work; it is the modern method of collecting scalps to their honour. Women should encourage their husbands to be normal, and it is certainly normal for a man not to look away from a girl. A man's life away from home, if he is far enough away, is seldom questioned. The woman knows that his bodily attributes are different from her own and the consequences less permanent; she is therefore usually more enlightened than the laws of man which by sudden changes often inflict the greatest hardship.

The marriage laws of the future can be relied upon to deal comprehensively with the subject from a very broad-minded point of view without interference from prudes and cranks. Medical men may speak of eugenics, but are they not now studying psychology as an all-important means of control? Is not love therefore to over-rule the doctor? Of course it is; it may yet teach him his business.

The sex book of the future will be worth reading. Too many people suffer from depression and disease from ignorance of this subject. Too many boys lay up trouble for themselves, and too many girls lose the best love of their life because they fail to realize that man cannot give in a year an equal standard of morality that all nature has withheld for countless ages.

It is just that the man and woman should suffer equally, but in the future when the characteristics of sex are more alike we may casually laugh at the wife who crosses to the Continent, just as we do at the male of to-day.

Few men have lives that could face the Sunday newspapers. Education and love can rectify this fact with greater benefit to civilization than the unrestricted supply of contraceptives from shops with half-open doors in the Strand.

Love is never perfect. It is a necessary

ideal, however, to enable us to establish our standards. The delight of a fire is only appreciated by those who have been cold. A beauty spot upon a pretty woman's face suggests a perfection which exists only in the imagination and cannot be expressed. A love based upon reason, which also realizes that the same face at a breakfast table every morning may be rather distressing, is far more likely to last than the auto-hypnosis produced by a lack of thought which refuses to appreciate the danger of moral subversion to a time of sex alone.

Since marriage is made a profession for women, it is a pity that qualifications are not indicated by some parental institute. A married woman who had the knowledge of bed-making in the direction of (a) to look as if they *had* been slept in, and (b) to look as if they had *not* been slept in, will be really valuable when the knowledge is applied without temper and in secret. Marriage in other than contract form may not be needed in one thousand years time. Its chief object to-day is to allay unnecessary suspicion.

Men love the ideal conception of woman, it is this mental process of idealization that provides occupation for judges.

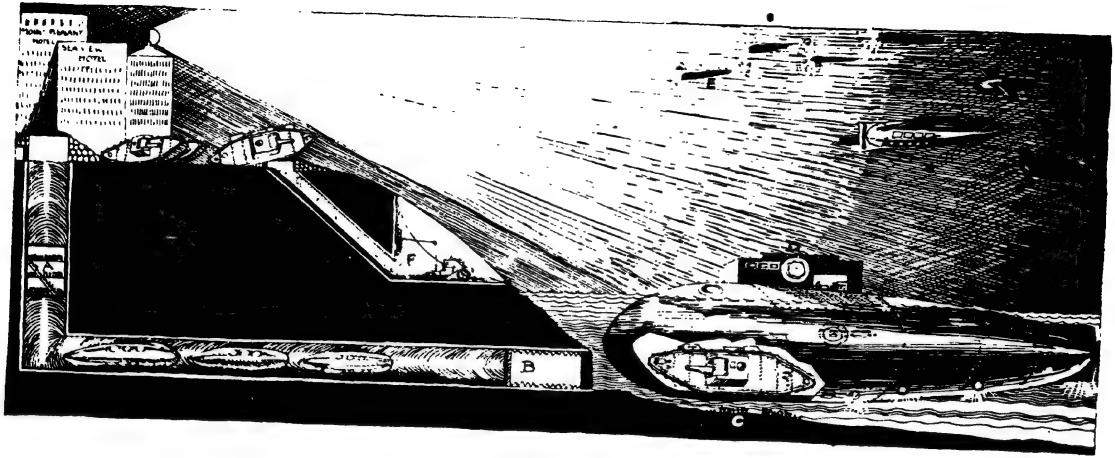
CHAPTER XV

WARFARE

It would be a very incomplete survey of the future that did not deal briefly with warfare, although, no doubt, many idealists would prefer the topic to be omitted, under the entirely mistaken impression that from now on human beings may be expected to cease from all worldly strife and struggles. That beautiful Utopian dream is bound to be as rudely shattered in the future as it has been in the past.

One might imagine that the wonder age of to-morrow, with its striking development of all the forces of nature, would lead mankind to thoughts of commercial prosperity, improved health and general conditions of life; but even a temporary peace can only be obtained by vigorous preparation for war. Cæsar's *Si vis pacem, para bellum* is as true to-day as ever. Even scripture tells us that "when a strong man armed keepeth his house, his goods are in peace."

In this imperfect world, war is *natural.* All



A COASTAL ATTACK.

A. Lifts.
B. Landing Tunnel, fleet of Submarines in waiting.
C. Divers at work Helping Landing from Tanks.
D. Conning Tower with Television View of Land from Wireless-controlled Aeroplanes.
E. All-metal Wireless Torpedoes.
F. Microphonic Listening Chamber.

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nature fights, and had we microscopic slow motion eyes, we could watch the ceaseless struggles of all growing plants. For human beings to cease to fight would certainly be as strange as if they lived for ever! The very presence of policemen in our streets is an indication that the final appeal is to force.

In the past we have devoted all our energy to devise more deadly means of dealing out destruction to our rivals, and to protect ourselves by the continual development of scientific machinery. We are still in the bow and arrow stage of fighting, and the certain developments of the future will lead to methods well calculated to cause the present day intellect to shrink in horror.

World war will in all probability become less frequent, but merely because the methods of the future will need longer preparation and be so terrible as to leave longer periods to recover from the frightful strain. The League of Nations, excellent as are its aims and objects, will not stop further warfare, and by plotting a curve showing methods of fighting we can demonstrate the scientific fact that wars are not likely to cease.

How may we expect methods of fighting to advance? Every year will bring forth its weapon for doing the greatest possible damage in the least possible time, and when we compare the

machine-gun of to-day with the slings and spears of our ancestors, we can realize what terrible possibilities there are as the process continues at even greater speed.

Scientists and inventors have ample assistance and funds when perfecting warlike inventions for their respective countries, and it is only when they wish to develop peaceable apparatus to improve the health, comfort and general well-being of mankind that they lack every kind of support. Thousands of pounds would be forthcoming to perfect a heat ray to shrivel up objects at a distance, whereas a man may struggle in poverty to develop an apparatus to restore hearing to the deaf or health to the consumptive.

An important factor in future warfare will be a highly efficient propaganda which is already recognised as a most valuable asset. As "frightfulness" will be employed as a matter of course, and every home will have its wireless installation, determined efforts will be made to undermine the *morale* of the people by broadcast reports, stating perhaps that typhoid germs are being scattered over towns from the air. This type of message could not be stopped in any way, for to "jam" the whole atmosphere by electrical disturbances would prevent necessary communication.

In the future, massive floating forts will take

the place of our present battleships; these will be able to constantly move their positions, probably under cover of artificial fogs, and will lie submerged for a time when this is necessary for protection. The development of surface submarine and aircraft will lead to what might be termed armoured-submaplanes, or boats capable of travelling in the air, on the water and under the water. Every new method of attack, apart from its direct result, locks up men and munitions for protective purposes. This is one great object of propaganda.

Huge submarines will bring armoured tanks to within, say, a mile of the shores of any country where they would be disgorged and quickly run to dry ground. The present submarine listening apparatus will be rendered useless by electrical disturbances sent through the water for that purpose, and underwater craft will be detected by submerged television machines or by radio apparatus such as we now find useful for locating minerals underground.

To close any narrow sea passage a chain of powerful mines will be laid with wireless sight attachments which will ensure their exploding *on sight* of any craft attempting to pass. The far future may find it possible to raise the temperature of any given stretch of water to a terrific extent by means of radio heat.

Cavalry will be obsolete, for a new deadly weapon will be jets of slightly acidulated water, highly charged with electricity, and horses can be more easily electrocuted than any other creatures. Their place will be taken by groups of small, fast fighting tanks, spitting out destruction in a dozen forms; these will contain nothing more human in their interior than a mass of delicate apparatus, for the brains that watch and control them by wireless from a distance will be far too precious to trust in the danger zone.

There will naturally be great activity in the air. Huge aeroplanes, launched by compressed air, will convey loads of men and apparatus rapidly to any point; their engines will be silent and flying at enormous speeds, scientifically camouflaged, so that it will need specially grouped and coloured search-lights to locate them in the air. They will be equipped with electric impulse guns firing a terrific number of bullets per second, and will keep in close touch with the base by radio writers and telephony.

Squadrons of wireless-controlled aeroplanes, or aerial torpedoes, will manœuvre accurately under the signalled instructions from the base, taking photographs, releasing bombs and disease at will. These will have the advantage of being able to take risks without endangering valuable pilot lives, and the explosive they carry can be one

that would be too unstable for the ordinary 'plane.

Cities will be protected against aerial attack in many ways, rays of wireless "power" being directed at vital parts of the machines from the ground, or from other aeroplanes. Vortex clouds of poison vapour would be released at a sufficient height to render them innocuous to those below, but deadly to the pilots of any machines that entered their zones. Protective rings of radio heat will be used to crumple up invading aeroplanes. A narrow strip of water will not give protection to an island. Tunnelling, machines, and aeroplanes will render any far distant portions of our Empire liable to instant attack.

Another new weapon used to disable air-craft will be electrically controlled rockets operated on a strong wire. This would be most useful, for to-day an aeroplane striking the telephone wires is often crashed to the ground.

Poison gas will be introduced in many new and terrible forms, also waves of radio heat; and the equipment of the fighting men *and women* will need very careful attention by scientific chemists to supply the necessary protection. Deadly germs will also be pressed into service in every possible way to harass both combatants and non-combatants.

The use of the wireless controlled torpedo at sea, equipped with radio-sighted periscopes, will

render necessary travelling "jamming" stations, which will patrol the coast and send out sufficiently powerful disturbances to paralyse all controls at a distance of several miles.

There will be great activity underground, both for protective purposes and because the introductions of wireless sight and light will mean that night affords no cover. Government and other important centres will be underground; there will be scientifically constructed shelters, comfortably equipped, electrically heated and lighted throughout. Electrically heated suits will be worn during cold weather, enabling the wearers to plug themselves in at different points of the shelter. Advanced boring machinery will tunnel underground at high speed, for constructing shelters and trenches.

One of the greatest difficulties of the future will be to form, and keep secret, plans in wartime. Our ancestors probably used a large oak chest to safeguard their secrets, wearing the key of the padlock slung round their necks. It will certainly be a work of art to prevent a leakage of information in the future, for the use of wireless telephony and sight, in an advanced form, will mean that practically invisible eyes and ears will be used for spying purposes, and it will need the most careful research to devise protective measures against such methods.

The movement of all the paraphernalia of war will be under the constant watchful eyes of television machines, and it will be necessary either to put up covering smoke screens or to disable the television apparatus by strong local disturbances.

Vortex or directional-beam-wireless communication will be in use, by utilizing rays of light or other matter to convey the waves, but this will not prevent messages being located and tapped. Secret codes will be used, or else messages will be sent by secret combinations of different wave-lengths on the principle of the letter lock. Mental telepathy may form a further means of communication, whole nations may be subjected to sterilizing or disease-rays, for a generation prior to attack.

Gun ranges will increase considerably, and ultra-long range finding with precision will be an exact science. Bullets will be rendered *visible*, and elaborate protective schemes will be devised to prevent surprise attacks. A delicate switch-board in experienced hands will probably deal out greater destruction per hour, in the far future, than could the guns of the *Iron Duke* in a week at present.

As women are adapting themselves successfully to all masculine pursuits, it is only natural to expect that they will play an equally important part in future warfare, sharing all the dangers

on complete equality with their menfolk, until the sexes are indistinguishable.

It is curious to note that during the Great War, women were very particular to point out that as workers in shell-factories they were vital factors in the conflict, but they complained against the aerial bombing attacks on the ground that they were non-combatants. An excellent example of the illogical working of the feminine mind. If it is logical to burst men into bleeding horrors, is it illogical to complete the work by the bombing of hospitals?

Only recently it was reported from Copenhagen that a Norwegian inventor was bringing forward a defence scheme for Denmark which will dispense with conscripts. The whole defence would be electrical, chemical and technical, and could be controlled by a small staff of experts. That may be taken as one of the first steps towards the scientific development of attack and defence that must be expected in the future.

By keeping to quite reasonable and logical conclusions we can reasonably foretell the lines on which the science of warfare will progress, and it is very evident that future wars will produce such terrible weapons that they may be only of brief duration, for humanity could not stand the strain for any length of time, and nature takes time to supply correctives.

It must be remembered that, great as the progress will be in weapons, it will be equally great in methods of defence, and the future will produce many elaborate scientific defences to counteract the advance of attack.

Just as we compare the mammoth guns of the *Iron Duke* to the spears of bygone years, so we must compare its massive steel armament to the frail shields of old. Attack and defence progress hand in hand, but the best defence is still and always will be—attack. Future wars will be wars of wave motion.

It would be very pleasant to picture a world so perfect that conflict was a thing of the past. *Our* world holds little promise of such a rosy state of affairs, and although this brief survey of future warfare may not be popular in certain quarters, it is useless to adopt the proverbial ostrich attitude instead of facing facts based on the natural, logical, and very relentless continuation of the curve along which our knowledge and lives are progressing.

War is a natural process, it has some noble results, it is responsible for some advance. Nature is far more unkind at first sight than any torturer of old. But mankind is a part of the universe, and can by thought learn to benefit from the tendency to good which far outweighs the wrong.

CHAPTER XVI

POLITICS

Politics is really the science of group life, and should, if genuine, be a noble profession. A profession pre-supposes wishfulness to teach—a heart-breaking thing in itself—and not only anxiety for gain. Those who to-day adopt politics for gain practice the art, but do not profess the science.

The crudest type of man works often for a woman or child—seldom for both—and this shows a dimly altruistic motive. It is the wish to benefit the family. The family works to benefit the village, and thence the country; that the world may benefit.

Politics will not be a genteel occupation like the Church, for members of the House will be kept up to the mark. There will be no room for sleeping partners in the future, and this alone will tend towards the referendum non-party ideal. Such matters as housing, minimum incomes and birth-rate will be discussed; at present a talker on

health is slept over and a war speaker fills the House.

In the future, the Law and Parliament will be closely connected, for the latter will really be the will of the people. Courts will be committees of the House, and wrongs due to lack of education and the resultant animalism, will be things of the past. Years ago children and pregnant women were worked to death; the will of the people cured this, and at present no one can realize how so great a wrong could have been allowed. So problems of to-day will be looked upon in the future. Parliament will become more international when increased speed and facilities of communication make the whole world available; it will cease to be a parish council thinking in days—a country will think in years.

Every year there are fewer willing idlers, and at present even in the country the people who prefer to work are in a great majority. It is therefore unlikely that the workers will be willing to leave their future and their fate in the hands of others for ever.

At present, a man with a perfectly legitimate grievance can thump the table and convince his supporters that his particular "grouse" is worthy of the country's attention. If he adopted the same procedure in bygone years the only remedy in the minds of his audience would have been

quite different. Instead of planning to elect him to Parliament they would have gone home and collected their swords and shields to back up the argument. That is a sign of improvement in the human race and shows that there is hope for the future.

Women will, of course, play a big part, a vital part, in future politics, and will naturally safeguard their own sex when introducing new measures.

To the average person at present how strange must seem all questions of politics, for they can only regard most politicians as being men of almost unparalleled brilliancy. How otherwise would they know all about problems which seem to be a mystery to half civilization? The cause of war, the cause of unemployment, and even the quality of beer hold no mysteries for them. But to the onlooker it seems strange that only a chosen few should be capable of deciding rapidly and bluntly all these difficulties. It might be thought that to be a politician is a matter of birth—like a gypsy. There will be steady changes in politics in the future. Parliament will become less local and more international; it will not be hide-bound by part measures, but working for the common end of improved social conditions for humanity—and itself.

Yet how far we have to go! Laws can be made to-day by the public, and vetoed by a

collection of hereditary beings whose only qualification for deciding upon the nature of the policy is the fact that their fathers owned the same block of tenement dwellings in an overcrowded part of the town.

It is amusing to realize that the old titles so hardly won by the strenuous commercial efforts of our parents receive more consideration than those of the present. We are more normal than ever to-day, and as perpetual dilution is taking place in every household, it would have been more reasonable should the greater purity of the initiator of any distinction have received more credit.

It cannot be that politicians of the future will regard the changing of soldiers attire with satisfaction, or on the slightest encouragement vote money for the covering of scaffold poles with red cloth. No being is benefitted by the perpetual application of adoration and finance. We have passed the day when the servants' household was at the moral mercy of their master.

All this will change peaceably in the future with a consequent saving in ermine and of costumes from the court suits of playing cards. Service is not a crime, it is a necessity.

In the future it will not be considered illegal to criticise those in high places when their status and general performance is assumed without

reason to be incomparably superior to all others. The fad of organization, a word excusing all laziness, will be self-applied to all who do not toil themselves.

It is not so strange. We would have laughed years ago at the suggestion that metals could be transmuted; to-day we read it in the scientific news with avidity. As for extension of life, we read of it almost without interest, and we add cubits to our stature in the advertisements as comfortably as we devote our living thought to the problem of a football match.

But politics and science will not always be separated, and intensive education by auto-suggestion before birth is only one method by which children may have their minds trained to observe and to receive impressions. If birth-marks can be secured and a hereditary up-tilted nose cured before birth by the scientific observer of the future, why not a mind that will have the lessons of humanity impressed upon it before its stage of labour comes to pass?

One of the greatest advantages of the political and philosophical mind is the manner in which good can mentally be built up from an apparently evil beginning. A legal community which can legislate against a dark cinema theatre or a taxicab without blinds can never be said to lack in prospects for the world to come. A country

should regard its politicians as prophets if they are to be of service. No man lives long enough or has sufficient brain to know definitely whether actions have been good or bad in their international effect.

Political education is the poor man's yacht; let him see to it that it is manned by friends, not scuppered by pirates. His newspaper, like his mind, will be more neat in time to come, for the education of the future will demonstrate the fact that hope is as necessary as soap for a successful commercial career.

Politics are a school of national selfishness; we talk of land and hope, we write of growing mightier day by day, but all such things are really parochial politics and incentives to robbery, violence, and war. Continual strife is nature's process. We must not be so egotistic as to imagine that human beings have the undisputed right to kill. It is nature that is at war, for life is taken with every breath of our bodies.

The battle for knowledge will not differ vastly in the future from the tribal wars of history, when cattle and women were necessary to bring forth the men who by the strength of their arm could keep the tribe in intermittent peace. Weapons were carried and used daily, but in the future if science intensifies warfare and prolongs preparation to such a pitch that attempts are

made to prevent the nation, against which attack is to be launched, from breeding and from thinking, intellectual science and original progress will render the periods of peace far longer. Politicians will one day be men whose thoughts are hardly bounded by this world, certainly not by one country.

This Earth may become over-crowded, but mankind will not always long for space and for exercise. The coloured races will choose from the best amongst themselves until transport has reached a state where journeys round the world render intermarriage one very practical shield against warfare as we know it to-day.

Our population will not always increase at the same rate; education will stop breeding for its own sake. Politics will help us to see how nature has used disease to build up the civilization of to-day, and how science, by emulating her, is learning that even war can intensify the march of progress. Politicians in the future will not discuss the price of beer. They would be more likely to develop a system whereby legitimacy of offspring is determined by the fitness of parents to produce and by the necessary permit which is granted by the state.

If politics is a profession for the common good, there will be but a thin dividing line in the far future between the House of Referendum and the House of God.

CHAPTER XVII

ART

The future will see the birth of arts and sciences developed and the average person's life will be widely influenced by beauty in its proper sense. An advance in this direction will be made when all the countries of the world become linked up, and so that opinions have ceased to be merely parochial.

People will not then look upon the kicking of a ball as an art, the control of the mind will be recognised as of greater importance. Real art is conducive to very delicate states of mind. Years ago people would not have been upset by a violet light; now, some are affected by imperfect shapes or by a sphere which irritates by its apparent perfection. A strongly coloured light is capable of producing mental and physical irritation largely because art has improved the accuracy of the human mind in every way.

To produce pleasant sensations people soak themselves by drinking, doping and dancing, but

they will discover the art of sense vibration far more wisely in the future. Even sex will become an art. People who discuss their relations with the opposite sex are apt to cause disgust; this is because we are becoming far more delicate in physical acts, more artistic, and more scientific. Mental advancement will not allow such a notice as "spitting forbidden," or even a public view of a man who eats with his mouth open.

Improvement in art requires improvement in mental capacity, and this will only be attained when other people's minds and thoughts can be brought before us as wanted, by determinate means. The most beautiful side of art is undoubtedly in science; it is beauty of imagination that implies the perfection of art, for facility of conception is far better than fact. Perhaps it is realized that modern art is far more accurate, and mentally beautiful, than that of olden times—excepting those people who endeavour by mere brainlessness to create attention.

There is nothing wonderful about the pyramids, relative to age. Any modern contractor could reproduce their facsimile if money and life were of no account. We cannot now brick men up when their work is completed. Trade unions would quite properly object. A dead bird in a woman's hat is not artistic. A bullock's lungs and spleen would be far more beautiful, though

admittedly more intelligent imagination would be needed. But is it less lovely on that account? A dog will value a bone more than a rose because its instinct tells it of food, and because the rose requires knowledge to appreciate.

Art cannot be confined to the child, the half witted musician, or the drunkard who is foolishly supposed to "play best in his cups."

Throughout all life runs rhythm. The human race first owed its appreciation of food to the tides, and this has instilled into humanity the idea of regularity which is so pleasing. The mere regular tapping of a drum does not constitute music and yet is its basis. To cater for the more fully trained minds of to-day the drum alone is insufficient and the super-imposition of oscillating notes is required. We have only to increase the periodic speed of a knife rattled on a table to be told that a fine note is produced by this means.

Music has changed very much as intelligence has grown. Sometimes by specialization it has become extinct, but as knowledge of sound increases so will new instruments and new games develop until the brain can be reached in its entirety by envelopment in the sense of sound without the vulgar preliminary of air beating upon the ears. If music is to rank as an expression of thought we cannot always take it for

granted that by the freak of birth an infant should, in this one direction, be capable of comparison with the adult.

It is quite likely that one of the arts of the future will consist of some form of synthetic surgery which may be applied before birth to ensure certain characteristics in the individual. It is very unfair that at present, although it is merely an acquired impression, a man's shape of face may affect his whole career. In the case of a woman this is effective past all bearing.

Future, not futuristic, music will undoubtedly be produced by many new forms of instruments and new methods of producing sounds; the scientific blending of pure notes will be utilized.

Painting will, of course, discover new methods and new materials. Even now it is commonly stated that certain paints cannot be reproduced simply because synthetic chemists have not bothered to do so. The effects of time can be faithfully initiated quite easily to-day, and some pictures are excellently reproduced by forms of art which have mechanical science in the background. They do not affect the senses by colouring and shape alone after the fashion of the pavement artist who rubs his drawing of a fish with a kipper in order to appeal to the senses. Many pictures of to-day will probably out-master the old in a few generations. When a valuable

picture has been admired for years and is suddenly discovered to be not genuine, we do not value it at all. Has it then ceased to be beautiful, or is it in better drawing? Is any workmanship more delicate than a limit gauge in an engineer's shop?

It is the fashion to state that old things are beautiful, but a glance at an illustrated paper of a bygone age will soon tell us that what to-day we refer to as fit for a seaside lodging house or a Midland factory, may in a thousand years be described in the flowing language of the would-be critic of that period.

The creation of an atmosphere of endeavour in the minds of all will be the drama of the future. The human form, now so vital to the artistic longings of the public, will come to be neglected until the time is upon us when the stage celebrity dreads to show his face lest it may obliterate his creative personality for his employers. To-day this anxiety is only found in the public's hope that an actress will not cease to act in private life. The disillusionment is far too cruel, too destructive of affection.

Love itself must be an art if all its failures are considered. It is doubtful if anything can equal the prolific nature of the emotions experienced by the guiltless partner of an unfaithful union. The maintenance of hope is never wasted in a

life where constant change is the order of the day. It is in this suggestion of desire for improvement that beauty lies.

CHAPTER XVIII

CRIME AND PUNISHMENT

To readers of the daily papers it is obvious, even to the present-day limited intellect, that laws cannot possibly abolish crime; and that if Parliament were to sit night and day to press through more laws on every subject, it would not in any way check crime in the future. But the methods of *administering* laws are far more subject to improvement.

When boys are educated to work according to their capabilities and tastes, they will be happy; life will not be "work" to them. In the future, as to-day, the man who loves nothing will be useless. Men will love work first and women afterwards, to a degree increasing with the equality of the sexes and the neglect of chivalry. The boy of the future who understands the protection of sex, and for whom it is recognised that individual minds need individual treatment, will have a far better chance in life.

Crime, as well as disease, is bred by ignorance,

and the rational educational methods of the future will go far to removing the cause. Specialization will not be restricted to the wealthy, nor will we train the young to work with their minds and then rate them soundly for bodily sloth.

The future will find real efforts made to cure crime, but the definition of the word will be changed. Laziness will be a crime—not selling cigarettes at 8.5 p.m., or handing out buns without bags after ten o'clock at night.

The habitual criminal—should such undeveloped intellects exist—will be treated by the doctor; all alleged criminals will be sick people, and they will be sent to institutions for corrective mental treatment. Most criminals are abnormal or mad, they possess an extraordinary tendency to burn down their houses to roast a tiny pork chop. These institutions will be enlightened places, and mutual intercourse and educational facilities will be encouraged. The present custom of brutalizing a man by locking him up for fourteen years, will certainly be regarded with the same horror as we now feel in looking back on the practices of the Inquisition.

Capital punishment will most certainly be abolished in the very near future, for no alleged Christian civilized country can permit this debased relic of barbarism to flourish in all its primitive ruthlessness. Its complete failure as a deterrent

has already been proved beyond doubt, and the public has expressed its willingness to temper justice with mercy by many huge petitions against death sentences.

No enlightened person attempts to defend the mediæval theory of retribution for its own sake, on which the laws of the present day appear to be based. It is realized—and probably in the future will be known—that even those who have themselves been murdered would probably wish for mercy to be shown. At present the brutality of retribution is demanded by comfortable people who have never suffered agonies of mental distress or even of actual want.

A century ago death by public hanging was a popular spectacle to the debased minds of that period, to-day tens of thousands shrink from the thought in horror; what must be the opinion of the future people with their superior education and intellectual capacity?

Because the foul crime of murder has been committed, the law, neglecting methods of *preventing* crime, sets machinery in motion to ensure the fact that the criminal is submitted to a few weeks of brutal mental torture, employing warders to ensure that no part of this torture is evaded by suicide. At the conclusion of this complete mental breakdown he, or she, is rushed into the presence of the Maker. The people of the

future will probably agree that this procedure exceeds many of the worst efforts of religion in the past.

Sometimes an attempt is made during a comfortable lunch to justify this relic of barbarity by the quotation, "An eye for an eye," but no attempt is made to complete the quotation. From this it might be inferred that a return should be made to-day to the Jewish laws, conveniently overlooking that the religion professed by the speaker is that of Christ, Who said, "I give unto you a new law," when this particular point was raised.

In most cases of suicide the victim makes a final endeavour to save himself, and so proves that the imaginary wish for death is only a passing phase of mental lack of control. Self-destruction will, in the future, be regarded as folly, for it is attempting the impossible. Nothing can be destroyed; we may lose our sense of time as in a dream, but we can no more destroy life than can a caterpillar decide upon ultimate death by burning its chrysalis when the butterfly has flown away.

The introduction of radio and other developments, speeding up travel and communication, will provide both criminals and the law with many scientific methods of committing and detecting crime, while scientific knowledge will replace

brute strength in this respect. To a very great extent the future will look to education to prevent crime. Scientific development will also play its part. When the secrets of thought transference are discovered, this would go far to check criminal tendencies, for few people dare to think aloud, and great moral improvement might result!

Laws will be helpful rather than revengeful, and it is possible that people will eventually fight their own cases, which would prevent much petty squabbling and "instructions to solicitors," if the parties had "to face the music" in person. Birth control will play a notable part in the elimination of crime in the future.

At the present time a man, under the impulse of nature, can commit many crimes; but in the future a care of the consequences will make his actions more controlled and less animal. But women may find that comfortable contraceptives cannot so quickly alter without disadvantage the facts that generations of convenience have established. What is a mere incident to a man is an electro-chemical change to a woman, well imprinted upon her mind. Women remember the anniversary of their marriage.

Following divine laws women are trained for marriage and receive the blessing of the Church on their union: yet if two people of opposing

mentalities are thoroughly unhappy, one of them has to commit "crimes" in order that they need not live together! If, indeed, it is true that marriage is a contract without the needful time limit, surely the termination of an engagement by a wedding is an indication that one party has no more to give. Two friends differ, one has provided money and presents, one—just friendship! Yet the law states that either the "option" must continue or money must be paid for the breach. What business! What perspicacity! The Church provides a valuable social event; we neglect it for a divorce. Can it be that co-habitation between divorced parties is right in the eyes of the Almighty, and illegal at the same time? Divorce is only rendered possible by difficulty of transit. If everybody could travel easily in their minds, it would hardly be practicable to live apart from the friend of a lifetime. No one could live next door to a previous wife with contentment. Superstition, alone, would so unnerve the neighbours that their actions would suffer, their unlucky forebodings receiving rapid consequential confirmation.

The future with its approach to the universally developed mind will not permit the luxury of monocles and two thousand guinea cross-examinations to be confined to the aristocracy.

Justice will become more of a necessity; our

legal writings, our specialized expressions and our adoration of what all these imply will be replaced by an age in which the courts will be less noticeable for the terror they inspire than the trust they deserve.

The happy day will come when we shall partially understand that laws, based upon what is right, should be kept for that reason and not because we are afraid of a physically powerful policeman who is still necessary to watch over us; then crime may be regarded as a delusion even though the progress of medical knowledge, very necessary knowledge to the public, indicated still further directions in which the law might be evaded.

The far distant future will teach us that identical laws cannot apply to everyone if perfect justice is to be maintained.

To those reared in luxury, and to those who are told to steal as a means of providing the necessities of life in childhood, theft is quite a different crime. The figure of justice need not be blindfold to remain honest.

CHAPTER XIX

CHEMISTRY AND BIOLOGY

With the general advance of science there will be wrought many chemical and biological wonders to the ultimate improvement of civilization. Even at the present time chemistry, as it used to be known, is gradually giving place to electro-chemistry, physics and bio-chemistry.

In the past, chemists have proved that life is not confined to plants and animals; they have shown that every structure known to man is living and only varies in its nature in accordance with its rate of life or the rate at which it apparently is dying; there is little difference between the two. Now, proof is being advanced to support the claim that the only reason for differentiation between materials of common origin is that their component particles are differently arranged and relatively oscillate at different speeds and in varying directions. The future chemist will not be long in doubt on this point, and he will use this knowledge for the

synthetic manufacture of materials unknown to us in commerce.

As the old-fashioned and much derided astrologer developed to the present day astronomer, so the future will find many of the ideas of the ancient alchemists brought to fruition. The conversion of lead into gold by atomic bombardment will present no difficulty, but it is doubtful whether the process will ever become cheaper than digging the gold from the earth. It is not necessarily true that gold will always remain at its present value, other materials may have far greater effects upon our daily credit.

The connection between solids and gases has already been established. One takes longer than the other to accommodate itself to the form of a containing vessel, but even water does not shape itself to a jug as soon as it is poured into it, it is purely a question of one material taking longer than the other. Quite a simple matter to the physicist who has been able by the ultra-microscope and the study of radio examination to discover much of the composition of all matter.

The careful study of simple things often helps research into more complicated paths. The flow of water is often used to demonstrate electricity to students, and already it is found that the study of radio oscillation is helping men to understand

the composition of cells whose origin, when known, will make such things as the control of sex an affair of a few moments consultation with the local general practitioner.

The future of chemistry, then, lies along the lines of atomic disintegration, and there is no doubt that the future will find us able to construct synthetically very many of the materials which are used in every day life to-day as the direct products of nature. It is very unlikely in the future that natural products such as plain wood, leather and rubber will be used. Even at the present time artificial wood is stronger than real wood, artificial rubber is made, and leather is prepared for little else than boots—in many cases not even for these important luxuries. It is quite likely that synthetic one-piece boots would be far better if they were made of materials more suitable to the conditions existing to-day. Many are prejudiced in favour of leather merely because they are accustomed to cutting up animals to get it; for the same reason a splash board was always built in front of a motor car to prevent the imaginary horses from kicking the passengers. In the future people will not bother about such matters, and with the aid of the chemists they will know how synthetic materials can be developed in the national laboratory rather than the traditional farmyard.

The chemist of the future will also be a biologist, for he will have found out a little more about the connection between the growth of the crystal and of bodies we all regard as living; a cellular life which applied to ourselves even to-day, with male and female in segregation, will not for long remain so lamentably mysterious.

The biologist of the future will play a leading part in the production of a good race of men, he will be more important than the gymnasium instructor. People will be trained to originate and invent, and it is quite possible that the human race, instead of being governed by war and disease will in the far future be guided by the brain developed by that heredity, and will adopt more merciful and progressive methods of living.

As all matter has a common origin and its particular aspect is due to motion, is it not feasible to suppose that eventually it may be possible to convert one form of motion to another at a distance. At present thought-interference by the stream of life prevents alterations of this kind taking place rapidly. If a man stands in America with a bucket of petrol and another in England with a bucket of water, each of these vessels represents matter in a particular arrangement and motion. When it is possible to transfer that motion by radio or other means, then

these two materials may be transferred. It is pleasant to think that the future chemist may look at a pot of raspberry jam, and know that if he alters the motion of its matter it would become strawberry, without the present need of artificial seeds.

The study of the atom, the electron and the final structure of matter together with a real knowledge of colloidal chemistry may lead to many valuable industrial discoveries. We have little reason to think that we have reached finality in diminutives any more than we can state with certainty how air can adhere to glass with a tenacity exceeding that of any well advertised adhesive.

The biologist and the chemist of the future will undoubtedly produce more effective means of birth control, while governmental ectogenesis and incubation will ease the physical shortcomings of anxious women less wickedly than the results of their absence are corrected to-day. Finally, permits for child-bearing will doubtless be issued by government departments, who may by their research into the life of living cells be able to tell us how it is that a woman's children by her second marriage often bear some resemblance to the first husband.

The biochemist will help the progress of healthy beings, for he will know how light affects

the system and will use this means to facilitate the growth of men and crops. He may associate himself with time in the development of various parts of the body to the supersensitivity of sight. "Electric Wheat" may well be a catchword of the future, if its essentials are not merely extracted and injected as required in a cleanly manner. We will not always eat a pound of rotting flesh from a dead bird, and reject a large percentage by so animal-like a method as is common to-day.

It is useless to adopt the modern policy of treating something as weak because it is weak. This only develops more weakness. If a weak woman is told she is weak and is given food in a tea-spoon she will never become strong enough to grab the spoon by the handle herself. The sluggard and the man who wants others to think for him should be dosed instead of doped. Electro-chemistry will teach us how comfortably large families may be avoided, but the public need have no fear. Union based upon affection is marked by self-control. It is made lasting by enlightenment and not the fear of discovery or the laughter of friends. Most people live together for this latter reason and as friends are few, their partings are the more frequent.

Some people are horrified to notice that spawning frogs resemble human beings in their display of affection; it is very wonderful, very

beautiful. A pond full of dirty water is one of the most exquisite things in the world, from the rainbow of separated light upon its surface to the rapidly changing life at its bottom. It is so perpetual and so interconnected with ourselves that we can well believe that no butterfly dies in the antipodes without some balance of life becoming free for our love.

The horror of a rotting corpse is only relative; we may as well see the new life as the old death. It is more interesting. It is only the unusual that shocks us by our ignorance. What is it but the snobbery of the uneducated, of the mental lounger? Let a man have three wives—in London, Paris and New York. Consign him to perdition—if he is poor. But the Rajah of Bong can be fêted, also in England, for relatively he is a man whose nobility of character will be vouched for by the highest war-decoration the nation can bestow.

The Bible tells us that the lily of the fields does no work. It is surprising to find such a mistake in an excellent text book. A plant can be drunk, a plant must needs chase its food, it must beautify itself to attract the insect that propagates its species, for it is a great factor in the life that has only begun to reveal itself to the alchemist of to-day.

CHAPTER XX

INVENTION

INVENTION is the offspring of science and art; it is the science of the continuity of thought. It is useless to pretend that people do not love invention and intelligent anticipation, for they *live* in hope! Every comfort, every difference in life that has weakened the body and strengthened the mind, is directly due to inventions. Invention is the tendency towards good. Continuous thought is invention. Few minds can concentrate on one subject for more than a quarter of a minute, and thoughts, like butterflies wings, are easily robbed of beauty. In the future all people will be trained to invent, and the faculty will be fully recognised by any nation that wishes for rapid industrial progress.

Some people maintain that if the Creator had meant men to fly, they would have been given wings. But they were given brains—which is *far better*. A brain no doubt took longer to create than a tree, and an old sardine tin in a

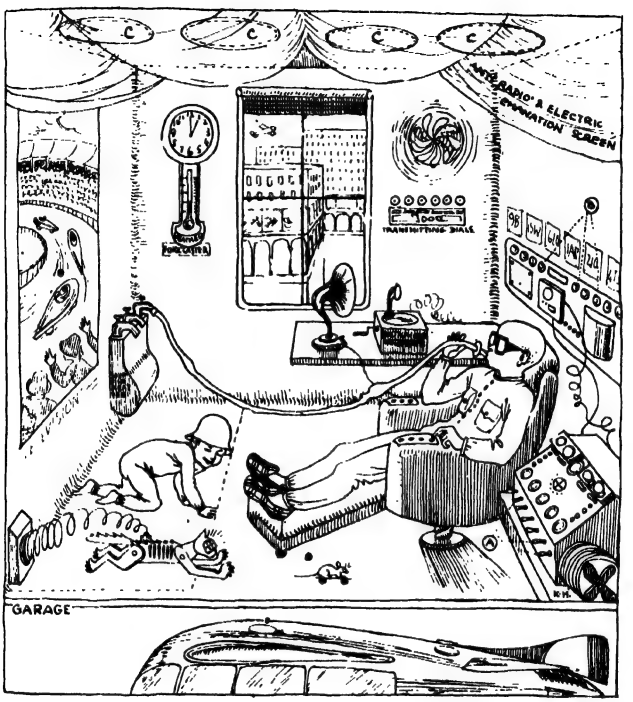
forest glade should remind one of beauty for the same reason.

The world at present is waiting for many inventions, and there is ample scope for both male and female inventors in the future. Cheap and efficient methods of house warming and lighting are needed, a method of conveying speech direct and readably to paper, a loud-speaker that is controllable without distortion, a selective method of beam-radio communication with really sharp tuning, new games of skill, an efficient internal combustion engine or turbine, a non-slipping road surface—there is no end to the wants of the present and the future.

Apart from the intrinsic value of each fresh invention, another weapon is provided for the advancement of thought.

There is a time honoured jest of the man who, when demonstrating an invention and grasping the handle himself, remarked, "You will observe that this wheel is turned by a crank." It is true that inventors are frequently strange people, but their work is that of creation, and their characters must therefore take on some of the novelty which characterizes their labours. All *new* things are laughed at. The inventor of the cinematograph was only recognised in time to raise a fund for his tombstone.

It is to be hoped that women will play a big



A QUIET LUNCH AT HOME.

(a) Contact with Outer World.
Other Planets.
Future.
Women.

(b) Communication with U.S.A. and India.
News.
Air Transport.
Submarine Transport.
International Parliament.
Law Courts.

(c) Wireless Broadcast Light Screens.

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part as inventors in the future, it would be an opportunity for them to demonstrate their great capabilities. It is wrong to argue that intense knowledge of any one subject is necessary, for many epoch making inventions have been introduced by those who have no detailed acquaintance with the particular art concerned. They were totally unprejudiced, but they were original.

The great fault that numerous inventors have made in the past is to waste their time and energy on unmarketable apparatus. To originate a mouse-trap which electrocutes its victims may be ingenious and clever, but as an inexpensive cat would produce the same result the invention would be of no practical use.

It would perhaps be popular in discussing women inventors to compliment the alleged "fair" sex ad nauseam, to say that, from Eve who invented untruths to Madame Currie who helped her husband in his radium research, women have done the work of the world. That while one hand was stretched daintily forth to rock the cradle the other was busy designing huge bridges. But why misstate the facts?

The general attitude adopted by women towards the science of invention up to the present is an absolute scandal. If it were a case of incapability, nothing would be said, but women are most ingeniously original. They can invent

if they want to, but how many take the trouble to do things for themselves. They are very ready to benefit from the inventions of others. They cannot plead inexperience, for all around them are the very serious domestic requirements of civilization.

Women's very originality will encourage them in the near future to cease from applauding the work of others, and to do it themselves. The search for novelty is no mere craze. It is due to ambition and to progress that people have knives and forks to eat with and beds in which to sleep.

Women should be the inventors of the future. As long as they assume that intensive education is impossible owing to physical weakness, so long will they be content to spend much of their time in the examination of garments which owe their existence to the creative thought and manufacturing devices of men. They probably never think that the various dyes which they use for so many purposes have occupied the minds of some of the world's finest chemists for years.

It is a curious fact that to evolve a new idea for an invention is practically as difficult as the actual working out, in detail, of the apparatus; but the superior intellects of the future will be better equipped for turning their minds to new methods. There will be many new ideas and

novel applications of old ideas to cope with the changing conditions of life in future times.

People and conditions alter every day, and there is bound to be a huge number of novelties introduced into the home, from advanced labour-saving devices to trousered women and wireless death.

We have no good talking films, no simple colour photographic process, no focussing attachment for X-rays. We cannot effectively store electricity, and we have not even developed a silent "usual office," for the modern rabbit-warren of a flat! Travelling platforms with automatically-controlled exits from trains, and doors which allow communication to each carriage rather than to the unguarded rails, have yet to appear.

To produce a typed letter still takes two operations. Shopkeepers spend vast sums to gauge public opinion, but have not realized that simple scientific apparatus could collect their customers' remarks as they chat outside their window on a sale-day.

We can truly make nothing; but matter is fortunately undestructible. Let us, therefore, use our powers of observation to convert it to our own ends in manners, depending as little as possible upon the habits of the cave man.

Sleep and travel still waste our time apart from

our choosing, and food is absorbed in such a manner that we have to get rid of much of it by the most troublesome processes. Nature is kinder than man only in one thing—variations in the scheme of life are so exceedingly slow that the consumption of rotting flesh in the guise of "game" is still relatively harmless.

We waste more than half our hard earned coal; we have discovered so little about slow combustion that we do not know the meaning of death; and if we will trouble to grasp the fact that the earth is so young that it has not yet cooled down in the centre, we shall have made one step towards invention and success.

To-day we cannot even fight upon atomic power, or utilize effectively the ætheric tremolo of the light which invisibly beats upon us as we sleep.

The man who sweeps his crossing a little more cleanly than the next is a scientist, an inventor and an idealist.

Then why not recognise him?

Married men are said to make the best inventors; adversity was ever a spur.

Invention will help to turn the fear of dying into the fear of death, an easier thing to combat. Real advance can save people's bodies, as was done by the introduction of cotton spinning and boot-

making machinery. Why should inventors not act as the agents of nature for a process which will give us the energy of coal hidden in the bowels of the earth, without the sacrifice of human life involved in picking it out, like the poor round a public dustbin? Minds as well as bodies will be saved by invention: and what is commerce to-day but the mental finance of invention?

When official support is given to the science of progressive thinking, the world will learn that the best horse in the world is little use without a backing.

We are a people of waste, and consequently of want. Much remains to be done in the perfecting of to-day's power obtaining machinery. New sources of power from wind, water, direct sunlight and matter itself will surely come, and there is no reason to suppose that the absurd wastage of the national wealth in the coal of all countries will not be done away with.

We shall have power by wireless, we shall have power from other planets as we use our fuel more efficiently. There should be little need for worry on this score. To be terrified because the coal supply is apparently vanishing, is to adopt the attitude of a savage who sees his forest cut down, and thinks that he must die of cold because there can be no more fuel elsewhere.

The study of oscillatory phenomena, indeed, of all phenomena, may show us that the dividing line between mind and matter is exceedingly fine.

Thought is an electrical operation. Electrical operations are apparently due to the movement of minute particles of matter. If, therefore, thought is so absolutely connected with matter, how can we distinguish between an idea and a so-called fact? In a word, *we do not know.*

The day of the scientist has not yet come. In some schools science is regarded as a joke, and goes under the nickname of "stinks." Before lightly dismissing those who try to learn and who try to explain some of the incidents of life, for this is all that science may do, let us remember that a few years ago many people were willing to be burnt to death because they thought the earth was flat.

We should all look to this future. We owe to a desire for improvement everything we have to-day, and we do not owe very much to posterity.

The simplest of questions can outwit the cleverest man, but he is no longer content to use his telephone when discussing the origin of a Greek word, and to be utterly ignorant of the why and wherefore of the voice that is heard from the other end. Our houses are cold, we cannot tune our wireless sets with accuracy, we waste our hard earned fuel like dross.

Invention and civilization are one. They are part of a natural and perpetual process of "speeding up." A wireless concert differs from a gramophone record by reduction of the time which passes between delivery of the spoken word and reception by the brain.

Think how our habits to-day have altered, and ask the question: is there any reason why they could not continue to do so? Some of us can almost remember being told that a smoking carriage could only result in death within a few weeks. Look at the photographs of travel taken a few years ago, look up drawings of the world's greatest men, of the world's greatest successes, made two centuries ago; and then understand that the man of the future will laugh at you as you laugh at your forbears. What would have happened to a man who utilized wireless telephony three hundred years ago? It would have taken quite a lot of water to quench the fires lit to burn him alive as a servant of the devil.

Yet is it not evident that nature wishes us to use our talent for the end of progress? Progress by its very meaning implies that it has no end.

CHAPTER XXI

THE OCCULT

THE occult is at present in the position of astronomy, when it was termed astrology. If a conjurer takes a rabbit out of a hat at a garden party there is applause, and people hope he gets paid well for doing so, but in olden times the feat would have been acclaimed as magic.

These practices, irregularly reported to the modern world from ages when knowledge was a crime and there were few guilty people, must not be taken too seriously. To us they often appear childish when the exaggeration of time and distance is discounted. This at least shows progress in intellect.

As recently as the reign of Charles II., a man of alleged education who had written on medicine and was the judge at an assize court condemned a woman to death on a charge of witchcraft. The woman was wrapped into a sheet and cast into a pond; when she did not sink she was "proved" guilty and executed. The charge against her,

on the evidence of two children, was of turning herself into a rabbit and playing upon the grass. Even students of algebra, some three hundred years ago, were watched by spies, as it was thought that the symbols used were the signs of the devil. Yet King Stephen, 1135, had all the *material* necessities for a wireless crystal set! Any little trick such as modern school-boys practise, like rubbing sealing-wax against cloth and allowing pieces of paper to adhere to it, would in those days have sent a man to the torture chamber.

There has been progress in the past, but in the future the average person will make a very thorough study of the occult guided by the advanced intellects of that period. The whole question is really one of time, although people imagine that it means miracles or things not understood. If a baby suddenly appears on a table, it is occult, but when the baby takes the usual time to appear, it is nature—the sole difference being *time*. Reports of miracles, therefore, might be embarrassing to a visitor from another planet whose time-factor was different; he might regard a change of weather as miraculous and the birth of a butterfly as a terrible bore.

Nearly all experiments on the subject of the occult are conducted with the object of finding

out what happens when we die. Truly, this is excellent research, but does it never occur to the enthusiasts whose minds are often warped by the loss of those for whom they possessed affection, that the time factor should above all things enter into the mystery of the occult?

The occult simply means that we do not understand; and while we must admit that many things exist which our eyes by the chance of nature cannot picture, we must also agree that we are so far connected to the animals that the time factor has fixed our limit of vision; it has fixed the band of oscillations under which we progress, and certain things outside the band cannot yet be conceived by our slowly advancing intelligences. Both the sex-locating and the homing instincts of moths and dogs are examples of senses or combinations of instincts which have become atrophied in mankind, or which, without instruments, are outside our range of sensitivity.

The mystery-cum-occult man, or woman, will hysterically inform you that he has spoken to his long-lost brother. Does it not occur to him that his brother is undergoing a time treatment out of all proportion to that of his own life? It may be centuries, it may be ages before his brother—his brother's life—happens to get into tune with him again; why should both spirits and living persons be passing through the world or living at

the same rate, for it is only the rate of living which defines life.

The universal belief in the continuity of existence in some form cannot be without foundation. In our most unhappy moments we do not refer to a dead body of a friend by his name; we know too well that the name implies the man and not the clod for which we have no affection.

It may be, in the future, that the doctor will become far more of a psychologist, and it may be that he will be able to explain to us why our sickness leaves us as we approach his house for a consultation.

In the future we shall not merely travel at enormous speeds from the bodily standpoint, but we shall think exceedingly quickly and remember with miraculous speed. We must not confuse the conjuring tricks of the ancients, which have been exaggerated by distance and time, with the occult; and because descriptions of them are vaguely given to us by persons who were easily impressed, we should not allow our reason to be overruled.

Practically everything we do depends really upon our occult sense of the unknown and future effects of time. An egg becoming a pigeon in a few weeks is only fit conversation for a dairy farm, but if we happened to live so fast that the apparent time was twenty years, or so

slowly that it was a fifth of a second, we should find ourselves looking into the future, regarding negative time with horror and dwelling in a world of mysteries, miracles and occult happenings. With what result? The occult would become normal and no longer strange to us. The less time we have to think in, and the longer the unknown periods stretched out impressively before us, the more affected are these. It is the future only that can impress us whether as the fear of the schoolboy for the morrow or of the business man for the ultimate success of his adventures.

The judge, dressed in robes and attired in a black hat for his most unmerciful and barbarous work, impresses us because we forget the man and we see the mystery of the Law. A fat old man with a bald head, red nose and slobbering mouth would not affect us with terror because we would largely know what his action portended.

There would seem to be small reason to-day to assume that the conjuring tricks of Indians related invariably by those who "know a man who swears they are true," or the skilled high speed signalling by signs, words and wireless of thought-readers upon the stage, are in any manner connected with the occult.

That there is more life than we know seems evident, but that our uniform and animal-like brains are sufficient to realize the presence of

anything so beautiful as a thought form, seems, alas, unlikely. But in the future, this will be different. The mind will find a new kingdom, hidden from us to-day by inertia and by our half finished bodies.

If the hopeful research of a few beginners is frequently rendered abortive by their enthusiasm, let us remember that someone must begin and that the beginning is seldom like the end.

Any science which renders us, like the knights of old, impervious to the itchings of petty matters is worthy. It is ourselves that are unworthy. We need faith, hope and charity. Faith alone can render the remainder quite unnecessary to mankind.

The dividing line between mind and matter is not absolute but relative, what is a vivid thought but creative sight? It is the power of thought that limits the apparently physical manifestation of matter. That development will take place to a point where matter owes its existence to thought is more than probable.

To-day, on this planet we cannot think tables into existence or move mountains, but it is not impossible that in other worlds peoples exist to whom such things are child's play. We do not even know that this earth is not already inhabited by other thought forms. The world may be a stable or a sheep-pen to the relative beings of the heavens.

CHAPTER XXII

TELEPATHY

TELEPATHY or thought transference has been the subject of many and various claims by theatrical and other charlatans who profess to have discovered its secrets.

Conscious telepathy is not yet a possibility in scientific detail, although there are found instances of remarkable communications to the subconscious and uncontrolled mind. Methods of thought-exchange are nowadays almost as crude as in the Stone Age. Viewed scientifically, present day "physical talking" means, that before any idea can be conveyed, the lips must be waggled, and irregular gusts of wind puffed out in order to produce sounds—a rather grotesque performance in these days of civilization.

There is a real need for some form of mental telepathy which, it is certain, will be met in the distant future, for in this world necessities have a habit of becoming realities. Many sciences were begun by tricksters in a peculiar manner,

and mental telepathy commencing upon the stage by exhibitions of super-signalling and memory training may develop and become a scientific fact.

Thought, it is known, is an electrical process. It is also known that all electrical energy is drawn from the earth. As the energy expended by thought must go somewhere and must produce oscillation, why should it not be eventually utilized to transfer the thought to another person's mind? There are many elements in this world that have yet to yield up their secrets, and modern research will discover the formula of mental telepathy when it is within the comprehension of any particular generation's intelligence.

It is only logical to call all types of speech at the best a rough and ready physical method of communication, and it seems obvious that in the future people will be able to converse with each other by a form of suggestion, electrical or otherwise. This would render unnecessary the actual physical meeting of those who might wish to discuss any subject. Centuries ahead will, in all probability, find mankind's method's of communication entirely revolutionized by some semi-mental process.

Mental telepathy may not be achieved by the present generation, but it is very certain that the human race is nearer to thought transference than

were the ancient Egyptians, though nature may require vast periods of time to achieve such ends.

Few, to-day, would dare to label mental telepathy an impossibility. It is most certainly a more hopeful field of research than the so-called spirit phenomena, which so many find profitable to-day. That beings, forces and even spirits may exist is very probable; it is the chance of birth, perhaps, that has limited our vision. But that a chosen few should so differ from humanity that they are able to induce other lives to speak to our own, through the medium of an erotic female or a pressed steel trumpet, is beyond the power of other than an abnormally conceited human to believe.

The average man must be tired of hearing the many tales of by-gone deeds being flashed into the memory of the living, forgetting that these may be mental scars handed down from generation to generation like a lump upon the nose.

Death is nothing but a process of learning, and while we may adopt the scientific aspect of religion in denying the existence of evil, we should recollect that imperfection of mind is equally bad, and that regeneration throughout the ages satisfies no one, and does not remove the terror of unusual learning from us. It is really time of which we are afraid.

It is far from impossible that impressions, scenes, words, and smells, are not only the result of by-gone ages, but social hereditary effects and the result of other people's thoughts impressed upon us day by day, and coming to light on some particular mental or physical occasion in a manner quite beyond our understanding. Conscious telepathy in a controlled form is as impracticable to our own crude minds as it will be simple to those who are to come.

The possibilities for the thought-propagation of what we now regard as matter may render contact unnecessary for the conception of children. What an argument for the fanatic who, pointing out that what is practicable to-day was always possible, will speak at great length on the subject of "religious" babies!

It may be that in the future telepathy will teach us how to harm ourselves by the adoption of unpleasant thoughts. It is, to-day, reasonably evident that every time we kill something unnecessarily we should not be surprised when somebody or something endeavours to hurt us. The man of the future will probably need some protection from the anger of his enemies for they will, quite easily, be able to inflict him with its trouble, as we to-day might interfere with a friend to whose wireless aerial we took artistic exception.

Conscience and worries are needed to produce the relative effect of happiness. Telepathy is only the mental carrier wave of desire.

CHAPTER XXIII

THE MIND

CAN the human mind keep pace with progress, or has science outstripped the limit of man's endurance?

The leading psychologists of many countries have recently discussed whether the brain of the present generation can readily absorb modern inventions and the results of to-day's scientific research. It would seem only reasonable to expect that under the more luxurious and easier conditions of present-day living, when people have more comforts than were enjoyed by royalty not long ago, the mind would be stimulated. It has been stated, however, that we cannot keep pace with the progress of civilization, and are consequently severely strained and prone to nervous breakdown. The civilization of the future, it is claimed, will eventually be threatened by the breeding of mentalities weakened under the trials of this progress. The explanation advanced for this curious opinion is that for thou-

sands of years the average human mind has made but very slight progress, whereas the inventors and designers of all instruments of comfort and speed have such developed intellects, that with the output of these abnormally advanced brains the minds of the masses are unable to keep pace.

There are, however, few grounds for agreeing entirely with the views of these experts. One generation has evolved the aeroplane, the submarine and wireless communication, while many other conveniences have been brought to a stage of usefulness, if not perfection. But all this is but a very slight taste of *what is yet to come!* Scientifically speaking, mankind is still in the bow and arrow stage, and progress in past years has not been so great.

A very much more feasible theory is that science has *developed* faster than human nature has *adapted* itself. Modern results are often obtained with ancient methods, and every industry must find its own method of working in order that excessive fatigue may be avoided, as a result of the lag of practice behind the advance of theory.

Although this applies individually, it hardly meets the case when discussing whether the progress of science has been too great for the minds of the nation as a whole. It may, however, be asserted with a tolerable degree of certainty,

that the brains of the present generation are *not* strained in any way with the effort to keep pace with the progress of civilization. The psychological study of intellectual work, although of short duration, has established this fact beyond doubt.

In most periods of history, people had very little knowledge, except in *isolated* cases; it is therefore the educational standard of the *whole* population that must be taken into account. The reason why some periods of Egyptian life seem to be well developed and trained is because we have only dim records of the *outstanding* persons and works; the standard of the *average* person and his work at that period was very low—almost bestial.

Since that date, the improvement of the human brain has been steady on the average, although not necessarily regular. Mankind has improved its mental outlook at the physical expense of losing the protective fur on the body. People do not yet know everything, far from it, but what is known to-day is far less *often* proved to be untrue! A good sign of the progressive mental capacity of the human race. The masses are now educated, and modern amusements have to reach a certain standard of intelligence in order to cater for the public taste. Socialism, which in many forms has an ever-growing

number of supporters, shows discontent—and discontent is a sure sign of progress!

Our human butterfly minds cannot be considered in their unit state, they must be viewed from the distance, as averages, if we are to realize the tendency of "mass" thought. If each day should bring new equipment with which to accomplish further deeds of advancement, people would soon realize that they are very far from perfect. We use only records of the most paltry periods of time, but all great wars, recurring as they do almost every century, spur men on to further efforts of progress, and to progress and education there is no finality.

The modern mind is relatively efficient and can absorb all the output of modern invention and scientific research. By examining the tendencies of recent years rather than the progress of each week, there is clearly not the slightest doubt that the human brain can keep pace with progress now, and will develop with sufficient speed to appreciate the further progress of the future. That we may already congratulate ourselves to a modest degree, is all the more reason why the practicability of further growth should be appreciated.

A newspaper, the most valuable aid to the poor ever conceived, offers us examples of requirements more effectively than any column of

"personal wants." What is hypnotism? Another sense undergoing its usual probationary period of charlatanism? It is now a science; it is used in our leading hospitals to suggest the will to get well. No man differs greatly from the cleverest being in the world, but such powers as are now being vouchsafed to him in mental control are so limited, so confused with auto-suggestion by the most obtrusive of the few senses which we know, that there is no reason to doubt that dictative suggestion from mind to mind will become a common factor of life. We know so little; to-day's knowledge is the jest of to-morrow.

Knowledge is a matter of personal opinion; conviction is no guarantee of truth. Why do we wake up in the morning when fear is upon our mind? Why does a man in the street look round under our gaze? Hypnotism?—perhaps it is.

Archimedes invented a drilling machine; but he would have difficulty in recognising the modern equivalent of his very serviceable discovery. To suggest, as we lie to our friends and hope for the best, that we are half civilized, is one of the best definitions of optimism that is available at the moment.

Control of the mind is exceedingly important; to-day we have so little control over our actions

that we are afraid to say "yes" in front of a man, when "yes" is quite easy by telephone. Few people can concentrate, even upon the subject of sex, for twenty consecutive seconds. This is nothing but an indication of the fact that in speaking we combine all our senses, in lecturing we impress by so-called personality, and we use up energy to give an impression which one sense alone is totally unable to convey.

CHAPTER XXIV

RELIGION

RELIGION is merely the art and science of hope. People practise it because it is all they can do!

Ever since the earliest recorded times the majority of things *not* understood have been thrown into a badly lit and ill-ventilated room with bare walls, and labelled "religion." The naturally hopeful emotions of men and women, particularly the latter, have led to the evolution of many formulæ, along lines which, owing to a total ignorance of premises, can be made to appear accurate. Religion should be best appreciated by clever people and should stand the test of applied reason. Part of its proof cannot be that it must be taken on faith. Is it civilized to administer the oaths of confirmation to the half-developed minds of infants?

The peculiar people, who profess to understand all the most wonderful mysteries call themselves priests, clergymen, fakirs, and so on, and they define their own particular occult religion, all

differently,some what on the lines of the schoolgirl's definition of Faith—"Faith," she wrote, "is believing something you know to be untrue."

The strange thing is, *and this may be the only religion of the future*, that infinite goodness is everyone's ideal. No one could know happiness without a conscience to provide a relative definition of good and evil. The gallery loves the hero, and whole nations are improved by the workings of infinity. If only people were told that the Christian Religion was the practical recognition of perfect good, then they would indeed love it. But there is too much heard everyday about the human laws laid down by man for the observance of religion.

The priest objects to people even reading about his own magic, and in some creeds will inform his public that God—a convenient term for infinity of goodness, and apparently a most pitiful creature—wants people to shut themselves up to pray, likes them to torture themselves and repeat one prayer *ad nauseum*. He even used to delight in burning people alive.

Surely God, surely even a clever *man* whose intelligence compared with the Christian God is negligible, would not ask for perpetual punishment and would not indulge in petty squabbles with the Devil—his own factotum, so to speak? Parsons do not regard the use of a lightning

conductor on God's House as a lack of faith. It is use of knowledge.

In the future, Religion will recognise the power that God has given men to think, and sane people will not be asked to believe an absurd conglomeration of myths for the sake of a few beautiful truths. People want no dim religious light, virgin births, and triple idolatry. They know that matter is indestructible, and are not content to live in their children and lose their ego. The formulæ that gave fools something practical to grip their minds centuries ago, are not good enough to-day. Religion is based on hope for a future life in view of the hopelessness of the present.

If only it was *known* that the personality of after life was secure, suicide would be constant. To-day we do not know if life is more than a localized thickening of the electron stream from the sun.

People of the future will want to know, and will know, the meaning of love in all its aspects. There are many points to clear up. Why is a body unaltered after death? Why do humans love the worn out, badly designed machine that gives them so short a life that they learn nothing? Is it not the personality they worship?

It is more than passing strange that Christians should feel goodwill for six days only in the

year, but let us remember that good is always counterfeited, and that we must therefore not condemn an attempt because a high ideal may be chosen. How unjust it would be were religion to be forgotten because one man steals one orange from one wheel-barrow in the street. It is unfair to criticise the clergy when they cannot answer us the question, do we live again—do our minds continue after death? But if they wished, if they really wanted to answer us in a manner which could be believed, how blunt they might be. Of course everything has continuous life, we know matter is indestructible, we know life is due to some form of electric energizing, and we know that energy cannot be dissipated without effect.

Is it not therefore purely a question of time? It is only because our lives are so short that we seem anxious about regeneration of mentality. It is the old story of the tortoise looking upon the life of a butterfly with sympathy. We say "Please God" very cheerfully for want of a better term but surely we mean "please goodness." But when we say "Please goodness" we merely imply that we hope the total effect of our actions may one day be of benefit to mankind of whom we are a part.

The process of death, of disintegration, of rotting, of fertilizing the soil, of rebuilding,

through the vegetable, the animal and the human kingdoms may really be very rapid.

We must not confuse an issue of this kind with the idea that our body is important. After an infinity of time, does it matter whether we are buried in a lead coffin or a paper bag? It can only result in disintegration taking a little longer, but a few moments of time added to an eternity so vast as to be beyond our conception is contemptible beyond words. How cheerfully we often turn round and say, "I do not believe there can be such a thing as goodness, or how can some innocent child be brutally murdered?" This is a very short-sighted policy.

It is only the limited nature of our minds which gives us these ideas. We know, for example, that a particular type of soil is necessary to create specialized types of human beings. Let us realize therefore that to someone of infinite intelligence, though not to the bearded individual to whom we are told to look as an angry father, but to someone of real intelligence, it would be nothing strange were a dozen men or a dozen children to be murdered, in order that the soil might be treated in such a manner that the result in the vegetable kingdom would eventually lead us to a brain, possessing the power to cure cancer.

Nature, usually more brutal than man, might

do this without unkindness, seeing that it differs little from a thyroid transference operation for which we would honour the agent most highly. Nature may wish to alter the brain of the brute; and how can we look so accurately into eternity as to define the meaning of truth? Nature seems more brutal than man at first sight. Such an example may seem far-fetched, but it is difficult to put a case strongly enough when all around us we have people whose idea of God is that of an individual who delights in ceremony, laughable to behold.

No religion will ever appeal genuinely to humanity unless it is always above them. True, religion is above everybody, but the human practice of it has become pitiable to educated persons and can make no appeal to their intellects. That it ought to make such an appeal is evident, for the brain of man is the best thing so far constructed by God, even if it is but a step in the house He is building.

Religion should surely be full of bright spots and not dungeons; it should be as good for a clever man as for a savage or a woman.

Even the Bible, written quite a long time ago, is not nearly so stupid as its human interpretation, and clergymen who receive a scientific education must no longer damn their case by stating facts that they know perfectly well to be untrue. It

is only the ignorant who will suggest that the need for the would-be-progressive individual who thinks on these lines is not knowledge but an asbestos suit.

It is becoming increasingly evident that ceremony pleases neither man nor God. All religions are based on the hope of a future life and the automatic advance towards morality. It is dogma, represented by the parson who is laughed at upon the stage, that is rightly killing the modern simulacrum of religion.

The world has altered in two thousand years: so has religion; yet we are told to keep rules when the very basic facts are wrong. That rules for discipline are good cannot be doubted, but something more than discipline is wanted either in an army or in a country. Self-help is the best protection against the action of fate.

Is not most people's idea of a God who fights every now and then with one of his old employees, the devil, sadly human? Does it not assume that God has an extraordinarily petty mind? Is it not ridiculous to say that God's idea of time is the same as ours, and to suggest that He created the Earth instantaneously?

One of the most remarkable things about modern religion is that the noble tendency towards good possessed by mankind has withstood the strain of connection with religious practices

frequently puerile and utterly negligent of mental progress. Is it not more wonderful and far more beautiful to perceive dimly the wonderful methods of structure by which the Almighty has chosen to build the universe. Is it not a far greater miracle than any recounted in scripture?

God certainly means us to use our brains, if we can use the word God for the all prevailing force of nature. God does not mean us to take the mental dole. The universe cannot doubt the existence of some controlling law, whatever be the name we give it.

The law which produces the continuity of matter, which shows us how energy is absorbed to be used again throughout the vast system of this and other planets, the law which enables animals to assume the colours of the grasses in which they live, which sends out seeds floating upon the wind to deposit their species and which provides seeds with spikes that enable them to catch hold of suitable places to grow, cannot be entirely a mistake. Surely the power which supplies through generations the instinctive memory that a certain berry is poisonous to a bird, is positive and good.

Nature does not live alone, for mankind is a part of it, and our brains are there for use. Birth-control for instance, a simple thing, is far kinder than war and disease. It is useless to rail

against something which our intelligence has given us and which must progress.

Why argue about the existence of evil when we hardly understand the meaning of good? And why endeavour to talk of childish miracles in connection with an Almighty force, whose wonder transcends anything our intelligence can grasp?

The false dignity of a Divinity Degree is not essential to carrying out the tenets of a simple Master. Heaven is too often represented as a land of milk and honey, very comforting to those who enjoy an excellent miniature of these conditions upon Earth. A man of intellect would be more interested to know the true conditions of stress in a concrete girder or to have accurate information upon atomic structure.

The trusting disciple is told that blind faith, an impossibility to the honest man, is a passport to Elysium after bodily disintegration. The Almighty power of the infinite in all other instances has preferred the more gradual and more beautiful process of development rather than the waving of a magic wand to the tune of "Let it be." Our time should have no meaning to a God of a thousand ages. Is not everlasting life more likely to be accomplished by a gradual process of extension, by our own mental effort, put forth over a period vast beyond conception?

Men are very like dogs all through their lives; they are still more like them in an early stage of incubation. This alone should indicate to us that we are passing through a steadily improving phase and should show us how important is the value of our thoughts. Thought tells us much more than television or common wireless; it can give us health, it can show us how the effects of rage, love and other passions may hurt ourselves as well us others. Thought is a very energetic process and therefore must have some lasting effect; surely no one wishes to waste something which endures, by conscious lies? Let us understand that nothing is lost. All energy must be stored somewhere, and just as sounds can never end, so thought continues for ever. It is our duty to see that the energy of our lives will blend with the common good that is in this world.

If we build a house we do not construct it in such a manner that it can be easily destroyed; we like to feel it will do us credit; should thought, therefore, not take its part in the building, and should we not realize that thoughts are far more important than deeds, as they will last very very much longer? Let us try to remember that evil we cannot understand, that good is very evident, and let us endeavour to think in that direction which will be a benefit to the world and incidentally

to ourselves. Prejudice is waste of time, for it cannot help and we would not wish to have all our little prejudices, all our simple doings and flashes of mental process, written down and handed to us many years after when something better might have been done if we had tried our best.

Fate only controls us in virtue of our imperfection. We are told that man was made in the image of God. Surely God does not alter his opinion. Which was the image? Was it the cave-man, or the stockbroker or the King? The small time elapsing between the Stone Age and to-day cannot have influenced God. Is it not obvious that the Almighty power of nature is still at work, and that the job is not yet finished? That is the one reason for our universal longing for the future.

Freedom of mind is our only help towards all advancement. Utter freedom can never be reached until the peace that passeth all understanding is attained.


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